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May, 1950

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GUEST EDITORIAL

THE PHYSICIAN AND BLUE CROSS

IT became apparent shortly after the depression in 1929 that some change was necessary in our plan in this country for hospitalization of ill patients. The initial attempt to form a pre-payment care plan was made at the Baylor University in Texas in 1932 and this proved to be the start of what is now known as the Blue Cross hospitalization plan. Shortly thereafter, numerous studies were made by various groups and gradually the pre-payment plans were grouped together under the single name of Blue Cross which today signifies a non-profit hospitalization plan which is particularly designed to cover the cost of hospitalization for the low income group. It is not the purpose of this paper to discuss the advantages or disadvantages of the Blue Cross Plan as opposed to commercial hospitalization insurance plans. Each has its place and each tends to supplement the other and it is to the advantage of the physician and to the hospital to advertise, not only the Blue Cross, but all good commercial hospitalization insurance plans.

It is the aim of the Blue Cross plans to provide complete hospital coverage at low costs for a limited time to its contract holders. Its members are secured by voluntary enrollment and pre-pay their hospital care by monthly or yearly installments and do not cover any physician's service except those provided in the hospital by the pathologist. Because it is the aim of the Blue Cross Hospitalization Plan to provide care for low income groups, the cost by the month is purposely low and for this reason it is impossible for the Blue Cross to pay large commissions to salesmen or to set aside large sums for advertising. This brings up the first responsibility of the physician to the Blue Cross, namely, the advertisement of the plan to all of his patients. Each physician should take it upon himself to inquire of all patients whether they are familiar with any hospitalization plan, whether they are enrolled in any pre-payment hospital care plan and to insist that those in the low income group join the Blue Cross. Each doctor should preach pre-payment hospital and medical care to all of his contacts in various walks of life, particularly to civic organizations and other groups who may be interested. Each doctor should know or have available some of the facts about his local group such as its services and cost and should be able to inform any patient as to the name of the plan and the name of the Director with phone number and office address. It is apparent that if every physician could spend even a few minutes daily with each of his patients and advise him or her as to the desirability of belonging to a voluntary pre-payment medical or hospital plan, it would not be long before there would be an enormous increase in the enrollment in all of the hospital and medical care plans throughout the country.

Further responsibility of the physician lies in curbing the abuses of Blue Cross Hospitalization. It goes without saying that in providing low cost care, the rate paid to most hospitals is under the usual hospital charge. For this reason each day that a patient is

in the hospital under the Blue Cross auspices is to some extent a financial burden to the hospital and it will be necessary to obtain income to cover the costs of his hospitalization from other sources. In addition, each day that the patient remains in the hospital there is an increased cost to the individual hospital plan and it is only through the efforts of the physician in charge that patients can be discharged early if they have hospitalization coverage. Even though these plans have been in effect over 17 years, the actuarial figures are far from being entirely known and until the plans are set up on a firm actuarial basis it is the responsibility of each physician to see that his patient is not hospitalized needlessly and does not remain in the hospital a day longer than is necessary.

If the physician has a responsibility to the Blue Cross, the Blue Cross has a responsibility to the physician and it is suggested that in each area the executive director of each local hospital plan or someone delegated by him, visit each physician in the community regularly so that the physician can be made familiar with the plan and its advantages. A few hours each week spent by a Blue Cross representative seeing the doctors could iron out many difficulties of opinion both for hospital plans and for medical care plans and it is only in this way that complete cooperation can be secured.

There is no doubt that the greatest single force in this country that has been set up to combat governmental control of medical care is the voluntary pre-payment hospital and medical care plans. All authorities are agreed upon this fact. It behooves each physician who is interested in the future development of medicine to study his local plan to see its advantages and its short comings and to work through the Blue Cross and Blue Shield so that we can continue to be independent of governmental control.

RUSSELL BUXTON, M.D.,
Newport News, Virginia

Floral Eponym

Dodartia

DODART, DENIS 1634-1707

DODART, an eminent French physician and botanist, was born in Paris in 1634, and died there in 1707. As a student, he excited the praise of Guy Patin, which is praise indeed, for Patin rarely spoke well of anyone. He said that Dodart was a prodigy of wisdom and of science, and at another time, he said of Dodart, that he was wise and modest, and knew his Hippocrates, Galen, Aristotle, Cicero, Seneca and Fernel by heart. Dodart practiced in the highest circles of Society, and held the chair of pharmacy in the Faculty. His studies in the history of plants brought him membership in the Academy of Sciences.

Dodartia is an erect perennial herb, related to Mimulus.

STREPTOMYCIN IN TUBERCULOSIS, ITS USE AND ABUSE*

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Blue Ridge Sanatorium,
Charlottesville, Virginia.

During the past several years, streptomycin has been undergoing intensive evaluation as a therapeutic agent in the fight against tuberculosis. This process of evaluation has been a most difficult one because of certain peculiarities of the disease. Regardless of how treated, tuberculosis tends to undergo spontaneous periods of progression and slow regression. Fortunately, in most instances, the body shows a natural tendency for eventual healing, unless the infection is overwhelming in degree or the body resistance utterly lacking. One must not be too hasty, therefore, in concluding that any one factor contributed entirely to the patient's recovery. Rather we must realize that the recovery occurred because of a combination of many factors. In the light of recent studies, however, it appears that streptomycin may act as one of these influencing factors, and that we may now consider the drug to be a valuable adjunct to our present therapy of the tuberculous.

At the outset it must be stated that there is still no unanimous opinion as to how streptomycin can best fit into the treatment program of tuberculosis. Problems relating to indications for use, dosage schedules, and duration of administration are still open to some argument. Since the intensive use of this anti-biotic was started at Blue Ridge Sanatorium in early 1947, we have had an opportunity to learn many things concerning its value and limitations. This knowledge has been acquired at the expense of admitted errors in proper use and some disappointments in results. To date, we have given streptomycin to approximately 300 sanatorium patients, 196 of these having received the drug between July 1, 1948, through June 30, 1949. Of those patients discharged during this same twelve month period, approximately one out of every four had streptomycin while in the Sanatorium. Although some of our patients have been able to purchase the drug, most have not been able to do so. Up to July 1, 1948, many were able to receive streptomycin because of generous donations from the Virginia Tuberculosis Association. Since July 1, 1948, a State appropriation has provided the drug for those unable to pay for it. In general, we feel that there has been some benefit derived by most of these patients, and that the considerable cost of such treatment has been more than justified.

In selecting cases for treatment, there are certain considerations to be mentioned briefly. Streptomycin in its various available forms has been repeatedly shown to affect chiefly the *exudative* component of the tuberculous lesion. There is less effect upon the lesion after actual tissue destruction has occurred, as is seen in the fibro-caseous pathology existing in the more advanced stages of the disease. This effect on the tuberculous lesion appears to be brought about mainly by a bacteriostatic rather than a bacteriocidal action on the part of streptomycin. Thus, the drug alone cannot be expected to eradicate the infection. Moreover, this bacteriostatic effect on the tubercle bacillus is merely a temporary one, due to the fairly rapid development of bacterial resistance to the drug. Ordinarily enough resistance has developed by the 60th day of treatment to definitely reduce the effectiveness of further administration. It is probable that this bacterial resistance is permanent, abolishing the chance of future good response to streptomycin.

Drug toxicity, especially vertigo, was once a troublesome factor in the use of streptomycin, but this has been greatly minimized with adoption of smaller dosage and with the newer dihydro form.

With the above facts in mind, it would appear that we should chiefly reserve streptomycin treatment for those instances in which there is likelihood of putting the disease under control within the relatively short period of two months total administration. In order to accomplish this goal, it is practically always necessary to use other treatment methods jointly, such as collapse measures and corrective surgery. If one uses the drug alone in hoping to control the disease, it is apt to bring disappointment and sometimes disastrous results.

*Read before the annual meeting of the Medical Society of Virginia at Fort Monroe, Va., October 9-12, 1949.

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PULMONARY INDICATIONS

As have other investigators,[1,2,3,4] we have found streptomycin to be one of the greatest value in conjunction with collapse treatment of the lungs. By using it for short periods of one to two weeks before and after starting artificial pneumothorax or pneumoperitoneum, we have been able to induce such collapse measures sooner in the more acute forms of tuberculosis, with fewer toxic and pleural fluid complications. Likewise, we have been able to perform successful thoracoplasties on a number of poor risk patients, especially those with active, unstable disease in the contra-lateral lung. Previously many such patients never became safely operable in spite of prolonged periods of strict bed rest. It is *not* our feeling, however, that streptomycin should be *routinely* used with all forms of collapse, even thoracoplasties. Rather, its use should be reserved for those cases carrying more than the usual amount of treatment risk.

In those occasional cases of pulmonary tuberculosis requiring lung resection (i.e., lobectomy or pneumonectomy), streptomycin has proven to be of great value in reducing post-operative spreads of disease and empyema.[5]

If collapse therapy or chest surgery is not contemplated, it is probably wise to withhold streptomycin in most cases, pending a fair trial on bed rest. Exceptions are those with acute exudative or pneumonic disease having considerable febrile toxicity. Also, diabetics with acute lesions often need the help of streptomycin, as these individuals have a low resistance to tuberculosis. It should be realized, however, that in these instances the end result may be poor unless the drug treatment is promptly followed up by more permanent treatment measures.

EXTRA-PULMONARY INDICATIONS

1. *Tracheobronchitis*: Wider use of bronchoscopy has revealed that this is a frequent complication of pulmonary tuberculosis. Its presence may greatly interfere with the performance and results of collapse therapy. The development of wheezing, x-ray evidence of atelectasis and the persistence of an unexplained positive sputum are suggestive of endo-bronchial involvement. The administration of streptomycin for a four to six week period will often put the condition under control, though it is our experience that it may later recur unless the underlying lung lesion improves.

2. *Laryngitis*: This formerly painful, and often fatal complication has shown good immediate response to streptomycin. However, as in the case of bronchitis, there are frequent recurrences in those with uncontrolled lung lesions.

3. *Generalized Miliary Tuberculosis and Meningitis*: Our experience in this condition, though limited, has shown that streptomycin may occasionally cure, but more often merely prolongs the patient's life.

4. *Miscellaneous Tuberculous Conditions*:
   a. Enteritis
   b. Sinus tracts
   c. Bones and joints
   d. Genito-urinary tract

The immediate results in all these conditions have been good in our experience. However, it must be remembered that whenever tuberculosis develops in an extra-pulmonary location, it is usually the result of a co-existing lung involvement. In such cases, unless the lung is taken care of, there is considerable chance that the extra-pulmonary focus may recur, even in spite of seemingly good initial response.

Although streptomycin produces some temporary symptomatic improvement even in the most extensive cases, palliative use should be avoided as often as possible. Many advanced, seemingly hopeless cases of pulmonary tuberculosis eventually get in shape for thoracoplasty through prolonged bed rest. These people often need the protection of streptomycin at the time of operation, and should not be made drug resistant by needless previous administration. There is some evidence, too, that those individuals who keep a positive sputum after prolonged streptomycin therapy may possibly infect others with their strains of drug resistant bacilli, rendering them hazardous both to their families and to hospital personnel.[6]

The dihydro form of streptomycin has been found far less toxic than the older forms, and is to be preferred except for the *intrathecal* treatment of tuberculous meningitis. We have found a daily dosage of one gram to be satisfactory in most cases, given in two intramuscular injections of 0.5 gram each, approximately twelve hours apart. More than one gram daily, except in cases of meningitis and gen-

eralized miliary involvement, has not given us any better results.

Our earlier cases were treated by giving the drug for periods of 90 to 120 days. However, it appears that this is unnecessary. By using properly timed short courses, better results can usually be accomplished within a total of 60 days. With the use of such short courses of administration, the total effective use of streptomycin can be considerably prolonged. After a 60 day period the patient is probably drug resistant anyway, making longer administration either useless or much less effective.

SUMMARY

Streptomycin is a valuable drug in treating tuberculosis. It should not, however, be considered as a definitive treatment, but should be used in conjunction with other recognized and established forms of therapy. Since there is a definite limitation to the period of response, it is essential that the administration of streptomycin be properly timed in the treatment program if best results are to be achieved. The mere existence of active tuberculosis *per se* is not an indication for the giving of streptomycin. Indiscriminate use of the drug is to be condemned, as it may deprive the patient of a necessary aid in his future recovery.

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DISCUSSION

DR. E. C. DRASH, Charlottesville: We have been interested in the surgical aspects of tuberculosis and the use of streptomycin. Dr. Apperson has pointed out some very important things regarding its use. As you know, the general public has become cognizant of streptomycin as a drug in the treatment of tuberculosis through the efforts of Paul de Kruif and other writers. I am sure that the pressure on the family doctor to use the drug for a patient waiting to enter a tuberculosis sanatorium must be terrific. The patient and his family probably request the use of streptomycin; but, as Dr. Apperson has pointed out, this may be disastrous if the doctor is influenced by the wishes of the family.

The price of streptomycin is also a factor. When it first came out the price was five dollars a gram. Those who got it then were those who could afford to pay for it, plus a few carefully selected patients who got the drug at State expense. Now the price is one dollar a gram, and the drug is available to practically everyone who needs it and some who do not need it. As Dr. Apperson pointed out, it is of great value in conjunction with collapse treatment of the lungs; and it is of great value in poor-risk patients on whom it is desired to do some form of surgery. We have seen a number of patients who under ordinary circumstances would have been completely inoperable but who have been made operable by the use of streptomycin at the proper time. We have seen other unfortunate individuals who received streptomycin unwisely and upon whom we were not able to operate because they had become streptomycin-resistant.

I think Dr. Apperson has wisely emphasized in his paper that the diagnosis of tuberculosis does not make streptomycin mandatory. I think we must all be on our guard to give streptomycin only when it is clearly indicated and not at any other time. Since streptomycin has become so cheap, relatively, and since it has become generally available the pressure to use it has become considerable, even in the sanatoria. There are many far advanced and hopeless cases who beg their physicians literally day after day for streptomycin in the hope that it will do something for them. I hope as we learn more about streptomycin it will be replaced by some more effective drug and that its use will be limited to those cases in which it is clearly indicated.

DR. APPERSON, closing the discussion: I wish to thank Dr. Drash for his comments. There is really nothing to add except to say that we are more apt to err if we give our tuberculous patients streptomycin than if we withhold it. The average case will get well without it. So I think in most cases we should withhold streptomycin unless indications are clearly cut for its use.

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POLIOMYELITIS: RESPIRATORY EMBARRASSMENT*

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and
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Respiratory embarrassment will occur in those patients who are having some difficulty in breathing, resulting from the infection of poliomyelitis. Before understanding respiratory embarrassment in such a patient one has to be familiar with the causes that may produce the symptoms of difficult respiration.

The causes of difficult respiration are many. Among these are a disturbance of the muscles of breathing which results in difficult respirations through the weakness or paralysis of the intercostal muscles and the diaphragm. The diaphragm on inspiration extends into the abdomen, therefore producing a vacuum within the thorax, resulting in expansion of the lungs. A weakness or paralysis of the diaphragm fails to bring about this expansion.

The intercostal muscles which elevate the ribs, increasing the capacity of the thoracic cavity when weakened or paralyzed, results in diminished breathing through lack of expansion of the lungs.

Spasm or tightness of the diaphragm and intercostals will interfere with the contraction of these muscles, and therefore renders diminished breathing.

Involvement of the respiratory center will interfere with breathing from failure of normal impulses extending from the center to the muscles of respiration.

Other causes of difficult breathing may be due to obstruction in the pharynx.

Among these are paralysis of the muscles of deglutition which will allow an accumulation of mucus and saliva in the pharynx preventing air to flow freely into the lungs.

A paralyzed tongue of a patient lying on his back will fall to the rear of the mouth and bring about obstruction.

Abductor paralysis of the muscles of the larynx allowing the cords to approximate will produce an obstruction to breathing.

When there is an accumulation of mucus and saliva in the pharynx, it will initiate a spasm of the larynx which will tend to prevent the saliva from passing into the trachea, at the same time will cause an obstruction to the passage of air.

Obstruction in the trachea is brought about by the aspiration of mucus and saliva, sometimes vomitus.

Atelectasis diminishing the amount of lung tissue available for the exchange of oxygen and carbon-dioxide is due to the accumulation of mucus or secretions blocking the small bronchioles.

Pneumonia when present may be due to the bacteria which have been aspirated from the pharynx.

Pulmonary edema developing in the alveoli due to hypoxia also produces obstruction to breathing.

Another factor bringing about difficult respiration is in the central nervous system where there has been an interference with the blood supply to the nerve cells of respiration by interstitial edema.

Fear can be a contributory cause as it may produce panic in some patients. As a result breathing may become difficult due to the hysterical manifestations.

Sedation when given to a patient to quiet him has at times deadened the reflexes of the respiratory center to such an extent that it may result injuriously to him. The center which may be depressed through hypoxia can be further depressed through sedation.

An individual showing a low hemoglobin or anemia may also show signs of impaired breathing. Dehydration or malnutrition due to vomiting or lack of fluids or both will also interfere with respiration.

Involvement of the circulatory center by the polio virus resulting in impaired circulation will affect respirations.

Those cases showing difficult breathing will usually have cell destruction of specific areas of the central nervous system. When the diaphragm and intercostal muscles are involved the pathology is located in the anterior horn cells of the cervical and thoracic area of the cord.

The respiratory center, circulatory center and the center of deglutition are located in the medulla or the so-called bulbar area. Pathology occurring in

*Read at the annual meeting of the Medical Society of Virginia, at Fort Monroe, October 9-12, 1949.

this area will bring about a disturbance of these centers.

The etiology of the cell destruction in the cord and medulla of acute poliomyelitic cases is due to several factors.

The poliomyelitis virus entering into the nerve cells by way of the axons produces a destruction of the cell.

The destruction of these cells brings about an inflammatory reaction which consists chiefly of edema and leucocytes. The edema and accumulation of cells through compression may result in asphyxia or destruction of the nerve cells.

When there is faulty oxygenation of the blood with failure of oxygen reaching the nerve cells, further cellular degeneration will take place as a result of the lack of oxygen or hypoxia.

With an understanding of the causes and the pathology which brings about respiratory difficulty in the poliomyelitic patient one is better able to treat the patient.

One must be able to recognize the symptoms which indicate respiratory embarrassment.

Respiratory muscle weakness or paralysis can be detected by limitation of the respiratory excursions. They are slow, irregular and shallow. There is some shortness of breath which can be demonstrated by asking the patient to count rapidly.

Limitation of the respiratory excusion can be brought about in a cooperative patient by asking him to take a deep breath. Upon attempting inspiration one will notice that the chest will not have its normal expansion if there is intercostal paralysis.

When the diaphragm is not paralyzed the abdominal wall will rise on inspiration which is brought about by the contracting diaphragm crowding the viscera into the abdomen. When there is paralysis the diaphragm will be sucked into the thoracic cavity on inspiration with sinking of the abdominal wall. When a child will not cooperate by taking a deep breath, weakness of the diaphragm can be demonstrated by splinting the chest with one's hands, requiring the patient to breathe with his diaphragm alone. If desirous of demonstrating weakness of the thoracic muscles, splinting of the abdominal muscles with the hands will force the use of the thoracic muscles for inspiration.

Cerebral symptoms such as somnolence, restlessness, anxiety, mental confusion are early symptoms of hypoxia.

Increased rate in breathing, dilatation of the nostrils, a slight respiratory grunt and a disinclination to talk will indicate that the patient is having further respiratory difficulty. Cyanosis from respiratory muscles weakness is a late sign and should not be allowed to occur.

When the respiratory center is involved, there has developed an irregularity of rhythm and depth of respiration. The respirations tend to be shallow and occasionally there are prolonged intervals between inspirations. The patient may take a deep breath. Prolonged periods of apnea may occur and finally respirations cease. These respiratory symptoms have occurred despite strong intercostal muscles and a strong diaphragm.

Due to the presence of hypoxia these patients are extremely anxious and apprehensive. They require frequent reassurance to calm them. They have fears and are confused.

Ultimately the temperature and pulse may increase or decrease. The blood pressure may be elevated or may fall due to shock. In fatal cases they develop cyanosis which can not be relieved by adequate oxygenation.

Symptoms due to paralysis of the muscles of deglutition are easily recognized by pooling of the saliva in the throat, the patient being unable to handle these secretions by swallowing. These secretions may be very profuse, obstructing the air passage. Occasionally weakness of the tongue, which may be unilateral or bilateral, upon dropping back into the throat may impair the movement of food through the mouth or impede the expectoration of saliva.

Obstruction of the airway can result from the aspiration of the saliva into the larynx and trachea or by reflex spasm of the glottis to prevent the accumulation of fluid into the trachea.

Lesions of the tenth or vagus nerves, which innervate the muscles of deglutition, may also produce disturbance of the vocal cords. The abductor paralysis which may develop will produce a stridor due to the approximation of the vocal cords and, if severe, may produce sudden asphyxia and death.

Nasal speech can be detected in some cases and upon examination soft palate paralysis can be demonstrated.

In the treatment of respiratory embarrassment oxygen can be of value in those cases where there

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are mild respiratory symptoms. The use of oxygen by tube or tent has given the patient relief and may carry him over a period of time preventing him from going into the respirator.

The use of the respirator should be used as soon as it is recognized that it may be a benefit to the patient. This is often demonstrated by putting the patient in a respirator and watching for evidence of relief and comfort. Relaxation and sleep is justification for placing the patient in the respirator.

The success of the use of the respirator depends upon the relief the respirator gives a patient. The respirator should be synchronized with the patient. The speed of the respirator should be set for a rate agreeable to that of the patient. The patient should be watched over a period of time to see that he is not straining against the respirator but is relaxing and breathing with it. Sometimes when the patients are first put into the respirator, on account of fear or nervousness, they are unable to relax and will breathe against the respirator. Soon they will adapt themselves if the respirator is properly synchronized and the air passages are free of obstruction.

When the patient cannot be synchronized with the respirator there are usually disturbances such as obstruction in the respiratory tract or respiratory center involvement initiating respiratory efforts.

Maintaining an unobstructed airway is of first importance in the care of the respirator case.

When there is obstruction in the pharynx due to an accumulation of mucus, resulting from a pharyngeal paralysis, a tracheotomy should be performed. Symptoms that justify a tracheotomy are a progressive difficulty in swallowing with accumulation of the secretions in the throat, along with mental changes such as apprehension, anxiety, and confusion.

The presence of spasm of the larynx due to the irritation of the accumulated secretions of the throat or to paralysis of the abductor muscles of the larynx allowing the cords to approximate are justifications for a tracheotomy.

A tracheotomy when done should be with as little trouble to the patient as possible. Some physicians have advocated slight general anesthesia but local anesthesia should suffice. If the patient is more or less in extremis, a breathing tube may be inserted into the larynx and trachea so there will be no obstruction to the passage of air and the operator may take his time in doing a satisfactory operation.

Following the operation the shunting of air directly into the trachea produces a certain amount of irritation which will stimulate the drying of the secretions of the air passages. The dried secretions in the trachea and bronchi may become so extensive that it will bring about obstruction to breathing. This can be remedied somewhat by allowing humidified air to flow through the tracheotomy tube as it will have less drying effect.

Oxygen when used should also be humidified. It can be used under slight pressure when there is partial obstruction by the mucus.

In cases of pharyngeal paralysis with the accumulation of mucus and saliva in the pharynx the patient in the respirator is kept with the head lower than the feet so that the mucus accumulating in the pharynx will not be aspirated into the trachea. This mucus is partially blocked by the tracheotomy tube and there will not be the suction on the mucus that there would be otherwise. The patient's head may be turned to the side so that the accumulative mucus will flow into a basin or towel.

Aspiration is helpful and may be carried out in these cases to relieve the pharynx of the accumulated mucus. Aspiration should not be carried out unless necessary, when the patient cannot remove the mucus of its own accord. Care should be taken in the use of the aspirator. Too rough or careless use of the aspirator within the pharynx will produce irritation and discomfort and the benefits the patient derives will be diminished. Too violent use will produce much gagging, resulting in vomiting complicating the clinical picture.

Careful aspiration of mucus through the tracheotomy tube may also be carried out. A soft catheter may be pushed in through the opening into the trachea. Suction should be applied during expiration so as not to interfere with the air going into the lung. Keeping the air passages open is the desired treatment.

There are cases where a patient has been placed in the respirator due to respiratory center paralysis. In some of these cases it has been observed that where the patient fails to synchronize with the respirator the patient either breathes between the respiratory excursions of the respirator or with or against the respirator. Following a tracheotomy these patients have assumed the rhythm of that of the

respirator.

A few cases will show failure of circulation due to involvement of the circulatory center. In these cases the patient takes on a dusky appearance. The pulse rate is out of proportion, from 50 to 200, with an elevation of temperature. The pulse is thready, the rhythm is irregular, blood pressure varies, may be elevated but begins to fall at failure of the circulation. Restlessness and anxiety are present as the circulatory failure appears. The pulse becomes imperceptible and the skin becomes cold and clammy and shows a mottled cyanosis. These cases usually show delirium, coma with hyperthermia. As for treatment, none seems to be of any avail.

Hydration of the patient should be carried out so that the mucus in the larynx or trachea will not become too viscid. In a well hydrated patient the mucus in the trachea will be moist so that it will not produce an obstruction in the respiratory tract. Parenteral fluids should be administered as needed. Electrolyte and fluid balance should be kept up. It is not necessary to use amino acids or the hydrolysates unless the patient is vomiting.

After the patient has settled in the respirator with or without tracheotomy, gavages have been quite successful and when properly done the patient can be fed without any vomiting. Some observers think that gavage feedings should be put off for several days on account of the possibility of vomiting. If a tracheotomy has been performed the inserted tube will more or less close off the trachea so that the patient's vomitus does little harm.

Complications that may arise are many in the treatment of the case in the respirator.

Obstruction of the trachea and bronchi with secretions such as dried and viscid mucus may cause a great deal of trouble. It can be prevented by gentle aspiration with a small soft rubber catheter during expiration.

An expectorant to keep the mucus thin so that it will not be viscid can be prescribed. Expectorants that act less on the vomiting center are the best. Fluids forced is a good expectorant.

Humidification of the air or oxygen that the patient is allowed to breathe will diminish the drying effect.

Atelectasis is a frequent complication and is produced by the smaller bronchioles plugging up with secretions. Treatment is to prevent the occurrence of this obstruction. Suction through the aid of the bronchoscope has given some relief.

Bronchopneumonia can occur when pathogenic bacteria have been aspirated into the lungs with the secretions of the pharynx. The use of the antibiotics penicillin and streptomycin have been used advantageously for prophylactic treatment.

Pulmonary edema can occur, usually terminally, and may be prevented by the prevention of hypoxia. It is thought that the diminution of oxygen is the cause of the edema. Removal of the causes that bring about hypoxia comprises the treatment. A collapse of the lung can be due to a complete blockage of the bronchi.

Subcutaneous emphysema has occurred when the respirator has been used with too great a pressure. Through hyperventilation of the lungs with the use of the respirator, alkalosis and tetany have been produced. A more careful use of the respirator will prevent these conditions from arising.

If treatment has been successful during the acute stage of respiratory embarrassment, the patient soon passes over to the convalescent stage and in due time, depending upon amount of residual paralysis, is weaned away from the respirator or the tracheotomy tube or both.

DISCUSSION

DR. EDWARD S. RAY, Richmond: I know it is a disappointment to this audience that Dr. Pembleton is unable to be here to discuss this paper and I share this disappointment.

As Dr. Sutton has so well stated the cells of the central nervous system that are already damaged by the poliomyelitis virus are very susceptible to further damage if anoxia occurs. Therefore, adequate oxygenation of the blood should be a part of the therapeutic regime of each case of this disease.

Bulbar involvement when only the upper cranial nerve nuclei are involved creates no real threat to the patient's life. However, when the lower cranial nerves become involved a very definite threat does exist. The most frequently involved cranial nerve is the tenth which innervates the soft palate, the muscles of swallowing and the vocal cords. As a result of this paralysis there is an accumulation of saliva and other discharges from the upper respiratory tract in the pharynx, which is readily aspirated into the trachea since the patient is unable to swallow; attempts to feed such a patient, of course, increase the volume of material available for aspiration into the tracheobronchial tree. Weakness of the vocal cords frequently results in stridor with strong inspiratory efforts which tend to draw foreign material into the

trachea and increase the obstruction to the airway; in addition, the increased respiratory effort with the increased negative intrapleural pressure will literally suck edema fluid into the interstial tissues of the lungs with further interference with oxygen exchange. By keeping the airway open in these cases by frequent aspiration of the pharynx, by postural drainage, and by feeding through a nasal tube as outlined by Dr. Sutton, adequate respiratory function can be maintained in most cases and anoxia of the C.N.S. kept to a minimum.

It should be emphasized that such cases when placed in a respirator will usually aspirate a greater amount of material into the trachea because of the "sucking" power of the respirator. When the respirator is necessary in cases that are unable to swallow it is usually wise to perform a tracheotomy. There is a modification of the head of the respirator that allows for adequate care of the tracheotomy tube when the respirator is necessary.

Bronchoscopy is occasionally necessary when secretions accumulate in the tracheo-bronchial tree and may be life saving when atelectasis is present. However, bronchoscopy always produces a certain amount of trauma to the bronchi and there may result an increase in the secretions within the bronchi—a bronchorrhea, so to speak —which is difficult for these patients to cough out.

These cases of bulbar involvement require the constant care of specially trained nurses. Keeping the pharynx free of "pooled" secretions and keeping the tracheotomy tube clean require frequent and expert attention. Such should be delegated only to those well trained in these aspects of nursing care.

I would like to ask Dr. Sutton if actual involvement of respiratory center isn't rather infrequent, and if the major respiratory difficulties that he encounters are not due in the great majority of cases to the involvement of the lower cranial nerve nuclei.

DR. SUTTON, closing the discussion: I want to thank Dr. Ray for discussing the paper.

About forty per cent of our respiratory cases, I imagine, are true cervical and thoracic involvement; that is, the respiratory center is not involved. It is hard to say when the respiratory center is involved when there is lower nerve involvement. The deduction of the respiratory-center involvement is due to irregularity in breathing and symptoms of anoxia. However, you may get the very same picture in paralysis of the deglutition muscles. It is, therefore, very difficult to say definitely how many respiratory-center cases there are in the series.

Recommend Routine Use of Smear Test in Cancer Examination of Women.

Routine use of the smear test in gynecologic examinations of women for cancer is recommended by Drs. Hannah L. Peters and William L. Madden of the University of Rochester School of Medicine and Dentistry, who describe a study of 200 women. (J.A.M.A., March 4).

In this series of consecutive gynecologic patients examined for cancer, three cases of cancer were primarily discovered through use of the smear test, the doctors say.

(The test developed by Dr. George N. Papanicolaou of Cornell University Medical College, New York, for diagnosing early cancer of the cervix and uterus is described by him as "a technique for collecting cellular debris, smearing it upon glass slides and staining it so that the various components may be studied.")

"More and more women are coming to the gynecologist's office for a 'cancer check-up'," the Rochester doctors say. "Yearly examinations are being requested. In these cases, cervical smears should be taken as part of the complete examination.

"The staining and examination of the slide is a laboratory procedure and should be in the hands of a person trained in cytology [study of cells]."

THE COMPLAINT OF "FORGETTING" FOLLOWING ELECTROSHOCK

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It is common experience with the after-effects of electroshock that a certain degree of "forgetting" is experienced by the patient. This "common experience" is extremely variable from patient to patient. In some, one or two electroshocks will produce profound lapses of memory; while, in others, 10 to 15 treatments do not seemingly affect the memory to any noticeable degree. The material forgotten may be limited in its retrograde expression, such as not recognizing the immediate episodes which resulted in hospitalization, or, it may be even more selective, involving certain small details of the past. The past is only one temporal section in which the disturbances are found, for not infrequently it involves current, newly associated material. If one is allowed to quantitate the "forgetting" process it may be evaluated between the extremes of a slight hesitancy in the recall of names to a profound disturbance of associations with the present and past. There is another influence of time on the process following electroshock; it is common experience to expect this particular after-effect of treatment to diminish as the time interval increases between the present time and past treatment. Yet one hears of difficulty in remembering being a complaint years after a series of shocks.

The word "forgetting" is used specifically in preference to other applicable words for the following reasons: (1) "forgetting", "to forget", "loss of memory", "can't remember", and "memory is bad", are the common terms, though by no means all of them, which individuals use to describe the condition they observe in themselves and which they relate to electroshock. Therefore, a word derived from "to forget" comes closer to expressing the ordinary viewpoint of the patient than the more technical one of amnesia which is associated in professional terminology with specific references to organic disturbances and to psychological disturbances. (2) As will be seen in the subsequent paragraphs there are two processes involved in forgetting related to the treatment. One will be called patho-physiological because it is concurrent with the experience of having the electrical current applied to the brain. The other is called psychological because it relates to associational factors which are well known and have been studied without the complicating experience of this treatment.[1] It is of this psychological process the patients mainly complain. It is here that the psychologically determined lapses of memory and the complaints of "forgetting" after electroshock meet on common grounds.

The bulk of the clinical material deals with an investigation of the psychological processes. This being true, it will be necessary to say a word or two relative to the formulation of these. When a person is asked to recall a certain event or name, or is placed in such a position that, without direct enquiry, recall is expected of him, the observer has to take several things into consideration. It is possible the material is brought into consciousness but factors inherent in revealing the material to another person are such there is a denial of the recalled material. To the other person it would seem this primitive mechanism of denial is usually activated to avert disagreeable feeling tones. The ideas, "I don't know", or "I forget", suggests these replies are avoidance of disagreeable feelings associated with criticism, the arousal of anger, or affective reactions associated with embarrassment, all being complex on an associational plane. A second consideration is the activation of the mechanism of repression in which forgetting is an automatic denial to consciousness of material existing within the unconscious and, under special circumstances, can be brought into consciousness. In this condition the repressed material is again associated with unpleasant effect, either directly connected to the material or associatively connected. In this process we see the opposite condition obtaining to that found in "slips of the tongue"[1] where the forces producing the slip outweigh the repressive forces. The repressed material may be brought into consciousness by recalling an associational link in the associational chain which is not too heavily laden with repressing forces or by having the repressed material spoken by an observer where it is known.

One of the defects in this clinical investigation is that an evaluation of the forces causing forgetting following electroshock cannot be controlled. If, for example, a name is forgotten after electroshock, we do not know whether the name could have been re-

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called before treatment or not. It is only through coincidence we will be able to obtain data relative to such specific forces. The impression one obtains is that so far as the patient is concerned, the forgetting of a name or incident following treatment is an unusual and unexpected condition which was not previously present. This, of course, may not be true. An attempt has been made by some observers to surmount this difficulty by giving the person to have electroshock certain words to remember before treatment,[2] recall of which is requested following treatment. One criticism of this method is that standardized words may or may not be associatively connected with denial and repressing forces. A result of this would be forgetting from the lack of emotional ties to past events. Contrarily, the words may be associatively connected, producing an active associational chain of thoughts, but these may or may not be associated with denial and repressive forces. "Forgetting", as it is recognized in this paper, is an active process.

CLINICAL MATERIAL AND DISCUSSION

It is common experience to meet with a patient weeks or months after electroshock who complains of difficulty in recall of names well known to him. This observation may be determined simply by talking to relatives of a patient, an example of which is as follows: a minister, unknown to the writer, was given electroshock for what seemed, by the informant's relation, to be an agitated depression. The informant, the minister's son, and an astute physician, made the remark, "Father got over the electroshock nicely, except he has difficulty in remembering names. We tease him about this. So far as I can tell he is not bothered by anything else."

This selectivity of forgetting has all the earmarks of an active repressive process on a psychological plane, as opposed to a patho-physiological condition produced by electrically stimulating the brain. In order to test this hypothesis out, observations were made on several patients.

An intense, dark-eyed young nurse was placed in attendance on a young girl of about the same age who was suffering from an acute psychosis resembling mania. Unknown to the staff physician who arranged for her nursing care, the two young ladies had met before at another hospital when this patient was suffering from a similar psychotic episode. The nurse began her duties early one morning and when they saw each other the patient recognized the nurse's face but not her name. The nurse introduced herself as Miss O. . . . Following this the patient was given an electroshock, of which, in the days preceding, she had had six.

The patient was interviewed two to three hours following this seventh electroshock and was asked to recall her nurse's name. Her reply, taken down as verbatim as possible was to the effect: "I hated everything at Blank hospital, and I've tried to forget everything there. That's the reason I can't remember her name". She recalled the name of the supervisor at Blank hospital (checked as correct by the nurse), and then continued about the supervisor and her nurse, "I liked her (the supervisor). She was not as nice as my nurse, but my nurse has a temper. She lost her temper with me once. I didn't want to stay at Blank hospital. She said I should be ashamed of myself. Her eyes get real black when she gets mad."

She was then given three names in the order below with the question: "Is your nurse's name "Roberts?" . . . "No"; "Johnson?" . . . "No"; "O . . ." "Yes".

The patient was then questioned about her present illness. She was able to recall in detail the events leading to her hospitalization on this particular occasion. When asked to recall the electroshock she had just had that morning, she was able to describe vividly the application of salt paste to her forehead and an injection into a vein in her arm. This latter was curare. She could not remember anything immediately following the injection.

In the course of relating the above material note was taken of a slip of memory relative to her ward physician. This gentleman had seen a great deal of her in the time she had then been on the psychiatric ward. There was little reason to expect she did not know his name, and, as a matter of fact, she did. However, she was not asked to recall his name but rather to express an opinion as to why she could not remember it. To this she stated, "He has on glasses and has monkey eyes". The observation about "the glasses" was certainly correct and one can have empathy with the idea he has "monkey eyes". No further associations were obtained but the trend indicated a derogatory evaluation of her ward physician and one would expect other associations showing an unpleasant, hostile feeling for a person whom his associates regard as kind and tolerant.

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In commenting on these observations one finds the name of the patient's nurse associated with unpleasant effect, recall of which occurred when the name was spoken. The name of the supervisor was also associated with unpleasant effect but not nearly so intimately as the nurse's. In forgetting the ward physician's name we come upon a control situation in that the forgetting seems to be associatively connected with acute attention paid to the "language of the eyes". Her ability to recall detailed historical material and also events leading up to her seventh electroshock of three hours previously would seem to indicate that the electroshock had little, or perhaps nothing, to do with the forgetting of these names. On the contrary the associational material would indicate an active process of repression just as it is experienced in ordinary life situations and has been widely studied.[1] The immediate loss of consciousness occurring with the advent of the electrical current would indicate, at that point, a complete amnesic period on a patho-physiological basis but of limited duration.

The patho-physiological effect may be illustrated by another case. This patient was a woman obsessed by the thought that she had done something to her son. She was brought to the hospital because she had had periods of crying and impulsive behavior. She was given one electroshock and during an interview which occurred 5 days later, she was asked to tell the story of this single treatment. As in the case above, she was able to recall vividly the placement of electrodes and injection of curare. The next thing she remembered was a short time later, the exact time being unknown to her. She said, "The first thought that popped into my head was about my son. He has a nervousness like mine and if there is anything in this world I don't want him to be like, or have, is me and my nervousness. He sleeps coiled up like me." There was no complaint of memory loss and none could be demonstrated.

In evaluating the conditions of forgetting in this particular episode one can say the single electroshock produced only an amnesic period due to a patho-physiological state induced by the electric current. This state was short-lived and produced no sequellae which can be attributed to it. The preoccupations which the physicians wished her to forget, and for which the electroshock was administered to her, were first and foremost when the patho-physiological condition wore off. During the interview this woman had no lapses of memory such as the case above.

Two questions arise at this point. Common experience with forgetting after electroshock indicates great variability. As was noted at the beginning of this paper it varies from slight hesitancy in recall to bizarre amnesic periods. In the second case presented here the forgetting seemed to be associated with unpleasant emotional tones, having as a focal point the eyes. The 7 electroshocks did not seem to have an undue influence on the process of forgetting and in the third case the patient awakes with the same disturbing ideas she had before her single treatment. The first question is, does the type of illness have anything to do with the prominence of forgetting after electroshock? The second question is, are the associational factors of importance? The following case lends itself toward solving these two questions.

An unmarried, exceedingly paranoid woman of 39 years of age, had been ill for a number of years. She had received electroshock with some benefit in January, 1948, but was returned to the hospital in September 1948 because an overt rejuvenation of paranoid ideas had gradually made her incapable of adjusting in her social milieu. At the time of the interview reported below she had received four electroshocks. Her comments are as follows: "I have been trying to remember a man's name all week. Those electroshocks sure erase things from your memory." On questioning the patient, she was loath to answer details about the man but did give the following information:

He was: (1) blond
(2) stout but not fat
(3) he had taken her out to a dinner and dance
(4) she could not remember whether he had attempted to kiss her or not
(5) in winter he was a coach for a high school
(6) in summer he was a scout for the Giants (N.Y.) baseball team
(7) the man and the patient's roommate got along well, "She can have him for all I care."

It is unfortunate we did not know of the existence of this man before treatment so that a control situation could have been established. It is also unfortunate no data was obtained as to why she was

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desirous of recalling this man's name. In spite of these defects several observations are possible.

This woman was very paranoid. We have no overt evidence that her condition was based in homosexual conflicts but we do have considerable historical evidence she rejected heterosexual activity beyond the point of casual dating. Physicians responsible for her welfare interviewed her with the idea of obtaining some statements from her about her sexual life. She would give none and they were thrown back on the more devious route of interpreting her symbolic behavior to get at this side of her life. The material presented in the interview above coincides with these attempts at interpretation of her sexual life. It will be noted in item four, she did not remember whether he had kissed her or not. This may be a denial of remembered material as mentioned earlier. In item seven, we find a somewhat ambivalent attitude but emphasis is definitely on rejection of the man. It carries a hostile implication. This would seem to give a clue to the repressive forces which deleted his name from her memory. This is that his name is associatively connected with unpleasant affect. Certainly her rejection of him in item seven, the failure of positive recall of sexual ideas in item four and the forgetting of his name, taken with the historical evidence of rejection of heterosexuality are all consistent.

Four months after the series of electroshocks she was interviewed again. She was reminded of the interview above, given all the data relative to this man as outlined and she was asked to recall his name on this occasion. Her comments, taken down verbatim, were as follows: "He sounds like a familiar person to me. Let's see. I don't seem to remember him though. Ruby O'd . . . was my roommate in B . . . She was dating a fellow. What was his name? Oh, yes. It was Bill J . . . Now it comes to me. The fellow you described was Taylor S . . ." It is plain the associational link was picked up at the point of her roommate. There was difficulty, again, in remembering a man's name but it broke through the repressing forces, and carried with it the name forgotten during electroshock.

During the course of our first conversation it was noted she forgot the word for the treatment she was getting, namely, electroshock. On questioning her she recalled the name and stated, "I don't mind them *but* . . . It's all right to have someone's brains shaken up as long as it isn't mine. I'll keep on taking them if you think they'll do me good." Here again the forgetting seems to be on a basis of association with an unpleasant procedure.

From the foregoing it would seem electroshock, as an empirical treatment, can be applied with greatest success where the capacity for repression is implicated, and where associational material contains disagreeable affect which the patient desires to deny to consciousness. The first question can be answered in this fashion: Patients with manic depressive psychosis, particularly the depressive phases, receive greatest benefit from electroshock because of prominent repressive forces and the disagreeable effect in the associational material. Under these conditions it becomes understandable how electroshock, if it is of aid in other psychiatric conditions, operates. The patient with the marked paranoid element indicated electroshock aided repression and the examination indicated the direction it worked in. This formulation would tend to explain why electroshock is of relative value only in schizophrenia, for it is in this condition that repression is often most defective. The question raised about the importance of associational material is, of course, answered affirmatively.

In the discussion just above a statement was made which has received all too little consideration in psychiatric literature. This statement was the "desire to repress". This desire is encountered very frequently in such statements as, "I wish I could forget that", "Will that thought ever go away", and "When anything starts worrying me I get to work around the house and forget it." This desire to forget was well illustrated by a woman who suffered from an agitated depression. Her illness began and progressed from the time a sheriff came to her home looking for her son, a minor town official, to serve a warrant for his arrest. He was being arrested on charge of suspicion of embezzlement of the town's funds. He was allowed to post bail and was not confined to jail. The patient could not get his predicament off her mind and no matter how much she protested she knew, with his positive assurance, that he was innocent, she continued to be agitated. She was given electroshock with some improvement, but not complete recovery, for she continued to have insomnia, epigastric distress, anorexia, and multiple painful somatic areas. She was seen about one month following discharge from the hospital. About the time of her treatment the son had been exonerated

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of the embezzlement charge. During the interview one month following discharge, her husband, who accompanied her, remarked he had tried to talk to her once about the son's experience but she would not let him. At this point in the interview, the patient flared up angrily, "I certainly will not, I have forgotten all that." It seems obvious repression was desired but had not taken place. Since the empiricism of electroshock is still an outstanding feature, one can only theorize about failure of repressive forces and continuation of her illness.

One of the not uncommon resultants of electroshock is a state of confusion in which disorientation is present. This state of affairs varies from difficulty in maintaining orientation to complete disorientation with marked hallucinosis. The following patient received seven electroshocks, which produced, during the height of his confusional state, disorientation for person and place, euphoria when being conversed with, but if left alone he had little contact with anyone. His illness had been ushered in six years previously by "stomach trouble", and during the height of his confusional state he went two days without eating. We were prepared to tube feed him but prior to trying it we gave him a glass of tube feeding to drink. He took the material in his mouth, gargled, and spat it out, saying that he could not swallow. He was encouraged to try harder to swallow and he succeeded. This advantage allowed us to discontinue our plan to tube feed him.

Approximately two weeks following the height of his confusional period he was interviewed about it. He told the following chain of events. Before he came to the hospital he told his wife he thought (he meant to say—hoped) she would be able to visit him. She did come at the end of the first week, just before electroshock was begun. To continue in the patient's words, "during treatment everything seemed to fade out except the idea my wife came to visit me. That idea would come and go. Dr. P . . . told me she had not been to see me (Dr. P . . . had been away and did not know of her visit). I thought it was just to test me. Then one day shortly after treatments had stopped I was looking at an old dirty shirt I had been wearing and came to the collar which had lipstick on it. When I saw that it was just like a book opening up to me. I knew my wife had been here and my whole memory came back."

We do not know enough about this man's psychological relationship to his wife (and mother) to understand the significance of this thread of memory running through his entire period of confusion, culminating in a dramatic restitution of memory when he saw the symbol of her presence. Clinging to the memory of her visit would appear to have a parallel in one relation he gave us about his wife and himself. He found, when he was unable to sleep and suffered from acute anxiety symptoms at night, that if he got his wife to put her arms around him he became so much at ease he could drop off to sleep almost immediately. If this is symptomatic of his attitude towards his wife, that is, that she is a guardian angel like a mother, we can understand why she is not associated with unpleasant affect and why her memory was preserved through the confusional period at the expense of others.

This case, representing one of the major memory and behavior disturbances following electroshock, concludes the presentation of case material. No attempt has been made to satisfy all the conditions which might be regarded as important for gathering and establishing proof of conclusions against argument. The summary given below, however, seems to fit the material presented.

Following electroshock, patients notice a distinct failure of recall of certain elements to their consciousness, which they designate as "faulty memory". It is also observable that certain elements are remembered in spite of marked confusion or the desire to forget. Stated in psychological terms, the observation of the ego is the recognition of repression in operation, which, by contrast, is more pronounced than before electroshock. It is equally true that the ego recognized failure of repressive force whether the ego desired repression to take place or not. From this investigation it would appear that "forgetting" is not a hit or miss proposition. Instead it would appear to be correlated with specific psychological forces which have to be determined by investigation of the individual case, although, in general, the presence of unpleasant associational material seems to determine the "forgetting". The persistence of elements in memory cannot at present be ascribed to an opposite or pleasant associational affective toning.

Forgetting appears in two relative phases. There is an immediate loss of all associations, past and present, due to the pathological physiological conditions set up by the electric current. This is recog-

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nized by every patient. The prolonged effect, where noticeable, is psychological. The material presented does not indicate the connection between the two phases, nor reason why electroshock is such an effective agent to bring about "forgetting".

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Acne Yields to Simple Treatment.

Acne can be cleared up or greatly improved by a simple program of treatment, an acne research project carried out at the University of Cincinnati College of Medicine shows. Local treatment and simple advice from a physician can bring about rapid improvement and frequently effect a complete cure, says Dr. Helen Dexter of the Department of Dermatology and Syphilology of the college in the March 11 Journal of the American Medical Association.

"In the 100 cases studied, age of onset varied from 9 to 32 years and duration of the disease from one month to 24 years," Dr. Dexter reports.

"Significant aggravating factors were found to be dietary and cosmetic habits; the way a patient customarily leans his face against his hand; emotional tension; a few drugs taken for other conditions, and occupational contact with oil and grease.

"The patients were advised on these matters. As a general rule, dietary restrictions were limited to chocolate, the cola drinks and excessive use of nuts and heavily fried foods.

"Local therapy consisted of day and night applications of hot lather two times in succession, followed by a cold rinse. Resorcinol [an antiseptic substance], sulfur and alcohol in a flesh-tinted, nongreasy base was applied once or twice a day. The soap recommended for use by the patient depended on the type of skin.

"With this treatment, the acne was arrested or greatly improved in all cases."

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia which are available to our readers under usual library rules:

Advances in surgery. Vol. 2, 1949.
Boss—Meaning and content of sexual perversions.
Chatton—Handbook of medical management.
Crile—Practical aspect of thyroid disease.
Fairhall—Industrial toxicology.
Flynn—The road ahead.
Fulton—Aviation medicine in its preventive aspects.
Goldsmith—The road to penicillin. A history to chemotherapy.
Grubbé—X-ray treatment. Its origin, birth and early history.
Linksz—Physiology of the eye. Vol. I. Optics.
McClellan—The neurogenic bladder.
Riggins and Hinshaw—Streptomycin and dihydrostreptomycin in tuberculosis.
Riley—Essentials of gynecologic endocrinology.
Rolnick—Practice of urology. 2 vols.
Sullivan—Conceptions of modern psychiatry.
Thorek—Modern surgical technique. 4 vols. and index.
Upham—A dynamic approach to illness.
Veith—Yellow emperor's classic of internal medicine.

TREATMENT OF GENERALIZED MILIARY AND MENINGEAL TUBERCULOSIS WITH STREPTOMYCIN AND PROMIZOLE—REPORT OF A CASE

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Tuberculous meningitis with or without the association of miliary tuberculosis has until recent years been considered a hopeless disease from the therapeutic standpoint. With the use of streptomycin a number of greatly improved or cured cases are being reported. However, in the follow-up study of such cases the outlook is still a poor one. The Streptomycin Committee of the Veterans Administration[1] reported on 260 cases of miliary and meningeal tuberculosis in October, 1948. Of the first 100 patients with bacteriologically proved diagnosis treated between March, 1946, and May, 1947, only 24 were alive in April, 1948. Of the 43 cases of tuberculous meningitis there were nine survivors and of the 35 with combined miliary and meningeal disease there were only three survivors.

Lincoln and her co-workers[2] have reported the use of promizole in the treatment of miliary tuberculosis. Three out of eleven cases showed complete recession of X-ray evidence and were alive thirty to thirty-three months after the first treatment. Six had been treated less than six months and were doing well and two had died forty-three days and four and one-half months after the beginning of therapy. Five patients with tuberculous meningitis were treated with promizole but died in from six to twenty-five days after the beginning of therapy without evidence of retardation of the disease. Because of the apparent beneficial effect of promizole in miliary tuberculosis and because of the need for a relatively non-toxic drug which could be administered over a long period of time, they reported[3] the use of streptomycin and promizole in the treatment of tuberculous meningitis in children. Of seven such patients treated one died in two months. The other six were living at the end of three to eight months.

A patient of mine with generalized miliary and meningeal tuberculosis was treated with streptomycin and promizole with survival from February to June and autopsy evidence was noted to show a rather remarkable degree of healing of the tuberculous process. This patient is being reported in detail because of the gross and microscopic findings at autopsy and their relation to the mode of therapy used.

OBSERVATIONS ON HEALING OF TUBERCULOUS MENINGITIS

Baggenstoss, Feldman and Hinshaw,[4,5] in a study of the effect of streptomycin on the pathology of generalized miliary and meningeal tuberculosis reviewed eight fatal cases. They found that definite histologic evidence of healing was present in six of the eight cases. By healing they meant the occurrence of fibrosis and hyalinization and the absence of caseation in the miliary tubercles. The regressive changes did not appear to follow the usual pattern of encapsulation of a cellular or caseous central mass but represented rather a diffuse even fibrosis of the entire lesion. This suggested that the healing had occurred so rapidly that the usual sequence of central caseation and peripheral encapsulation did not have an opportunity to develop. The regressive changes in these lesions resulted in the formation of irregular fibrotic scars with rough or angular borders rather than the typical more nearly spherical lesions of the primary complex of the lungs and hilar nodes, hematogenous lesions of the kidneys, prostate, adrenal glands and bladder and especially the brain. The healing was definite in the lungs, liver, and spleen. The comparatively minute lesions healed best whereas the larger lesions showed less effect. The concentration of streptomycin was determined in various human tissues and fluids secured at autopsy. There was a significant concentration of streptomycin in the spinal fluid but it was completely absent from the brain. Adcock and Hettig[6] also found that the brain was virtually free of streptomycin. Corper,[7] in a bacteriological study of the various phases of the use of streptomycin in tuberculosis, pointed out many of the difficulties in obtaining controlled studies of the action of streptomycin in tuberculosis. In his study of experimental virulent infection, streptomycin did retard tuberculosis but could not prevent a lethal issue of the infection.

Alperin and Toomey,[8] in a report of 9 cases of

tuberculous meningitis treated with streptomycin (none cured at time of report, two showed good clinical response) stated that the tuberculous process is often initially seeded in the brain as well as in the meninges. They felt that the absence of streptomycin and of evidence of healing in the brain substance make apparent the poor prognosis and eventual poor outcome of patients with tuberculous meningitis.

REPORT OF A CASE

This 34 year old married female with two children was seen on January 23, 1948, at which time she stated that she had been well and in good health until May, 1947, when she was awakened by pain in the left lower chest which was sharp and cutting and hurt when she took a breath. Her temperature was 103° to 104° F. She was ill for a period of five to seven weeks, during which time she lost about 25 pounds in weight. This illness was called a virus pneumonia but no chest X-ray was taken. She had been feeling well since, except for a slight feeling of soreness in the left chest and a non-productive cough. Two weeks before I saw her she had chills and fever and was in bed for four days. A week before she was nauseated and vomited. Since then she complained of malaise and a dull ache in her chest.

Physical examination showed a thin female who weighed 118 pounds. Her oral temperature was 100.6° F. Examination of the chest revealed at the left lung base posteriorly dullness on percussion, diminution of breath sounds and a few fine crackles. Examination of the heart revealed the pulmonic second sound to be accentuated. There was a systolic murmur over the pulmonic area. Complete physical examination was otherwise within normal limits. Roentgenographic examination of the chest showed a homogenous density from the lung base to the level of the fourth rib on the left. A diagnosis of pleural effusion was made and the patient was admitted to the Virginia Baptist Hospital on January 25, 1948. Laboratory findings revealed the urinalysis to be normal with the exception of a trace of albumin. The hemoglobin was 93% (Sahli), erythrocytes 4,600,000, leucocytes 5,000 and differential count of the leucocytes revealed 75% polys, 18% small lymphocytes and 7% monocytes. Sedimentation rate was 38 mm. in one hour (Wintrobe tube). A diagnostic thoracentesis of the left pleural space was performed on January 26 and 30 cc. of straw colored fluid were removed. Culture of the fluid was negative. Differential smear revealed that the fluid contained 98% lymphocytes and 2% polymorphoneuclear leucocytes. Part of the fluid was injected into a guinea pig which died about two weeks later, but due to an error no autopsy was performed on the guinea pig. During the hospital stay from January 25 to February 6 she ran a low grade fever for the first five

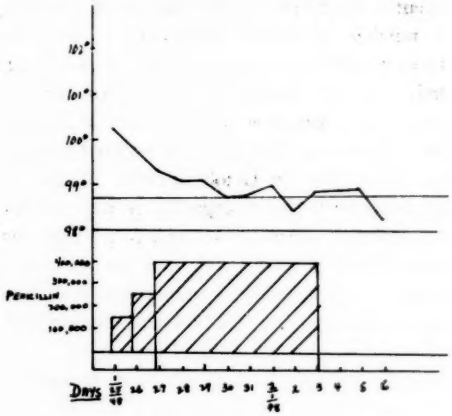

Fig. 1.

days (Fig. 1) with normal readings being obtained thereafter. Because of a repeatedly positive serologic test for syphilis she was given 50,000 units of penicillin every three hours. On February 6 roentgenoscopic examination revealed a very small amount of fluid which just filled the costophrenic angle of the diaphragm on the left. The final diagnosis was pleural effusion, which was probably tuberculous in origin. The patient was sent home to continue with complete rest in bed. She was next seen on February 13 at which time she stated that she was not feeling so well. Her temperature was 100.8 F. Her weight was 116½ pounds. Hemoglobin was 70% of normal. She was given 300,000 units of penicillin in oil and wax daily for the next three days, but, since she remained febrile with the temperature ranging from 101° F. to 103° F. daily, she was readmitted to the hospital for streptomycin treatment on February 19. A complete physical examination at this time showed the only positive finding to be slight diminution of breath sounds at the left base. She complained of some abdominal pain, pain in the lower back, in the right hamstring muscle groups and in the left calf. No positive findings were noted in regard to this. Hemoglobin was 75%,

erythrocytes 3,950,000, leucocytes 6,700, polys 83%, small lymphocytes 10% and large lymphocytes 6%. Sedimentation rate was 36 mm. in one hour. Streptomycin therapy was instituted with 200 mg. being given every three hours. On February 23 a lumbar puncture was performed because of headache, a beginning nuchal rigidity, and a temperature ranging from 99.8° to 103.4° F. The spinal fluid was slightly milky in appearance and contained 342 leucocytes per cubic mm. 95% were lymphocytes and 5% were neutrophiles. Total protein was 520 mg. per 100 cc. of fluid. Wassermann was negative. Colloidal gold curve was 1111222111. A guinea pig was inoculated with this fluid but died in twenty-four hours of peritonitis. The presumptive diagnosis of tuberculous meningitis was made. Further spinal fluid findings are as shown in Table I. It was noted at this time that she was unable to void spontaneously and required repeated catheterization to prevent bladder distention. Her neck became very stiff and she complained of blurred vision and severe headache which was poorly relieved by medication. She developed a urinary infection with albuminuria and pus cells graded as +4 on the basis of 1 to 4 (1 being the least and 4 being the greatest). Culture showed a coliform organism which was not identified further. Cystoscopic examination was done by Dr. S. H. Rosenthal who found numerous cystic blebs in the trigone, the base of the bladder and in portions of the vault. A few of these had ruptured, leaving superficial ulcerations. I.V. pyelograms showed no abnormality of the kidneys. The temperature of the patient was as noted in Figure 2. On March 5 the patient was noted to have persistence of nuchal rigidity, a sense of numbness from the waist down, a general hyporeflexia and equivocal bilateral Babinski signs. She had a marked polyuria and also some blurring of vision. The fundi were entirely normal and the muscle balance seemed normal without presence of a squint. On March 8 promizole (Fig. 2) 2 grams daily by mouth was begun. The urinary infection was treated with mandelamine, penicillin, sulfadiazine and bladder irrigations in addition to streptomycin at various times during her hospital stay. From March until the time of death she complained of pain radiating anteriorly from the thoraco-lumbar area. This was considered to be a nerve root pain related to the

TABLE I
SPINAL FLUID

Date	Cell Count	Differential	Chlorides	Sugar	Protein	Culture	Guinea Pig
2-23-48	342	Polys 5% Lymph 95%			520		
2-27-48	23	Polys 23% Lymph 77%	532 mg.	22.0 mg.	1000	Neg.	
3-12-48	Spinal fluid xanthrochromic 7	Polys 15% Lymph 85%		18.5 mg.			Neg. autopsy 6 wks.
3-30-48	191				6120		
4-3-48	Cisternal Tap 97				120		
4-5-48	S.F. Xanthrochr. 286 Cist. Tap 224				4200 138		
4-14-48	312	All lymphs					
4-22-48	490	Polys 11% Lymph 89%		22.0 mg.			
6-17-48	13			29.0 mg.	2000		
6-24-48	10,000 wbc 100,000 rbc	Polys 82% Lymph 18%	775 mg.	73.0 mg.	6500		Neg. smears for tbc.

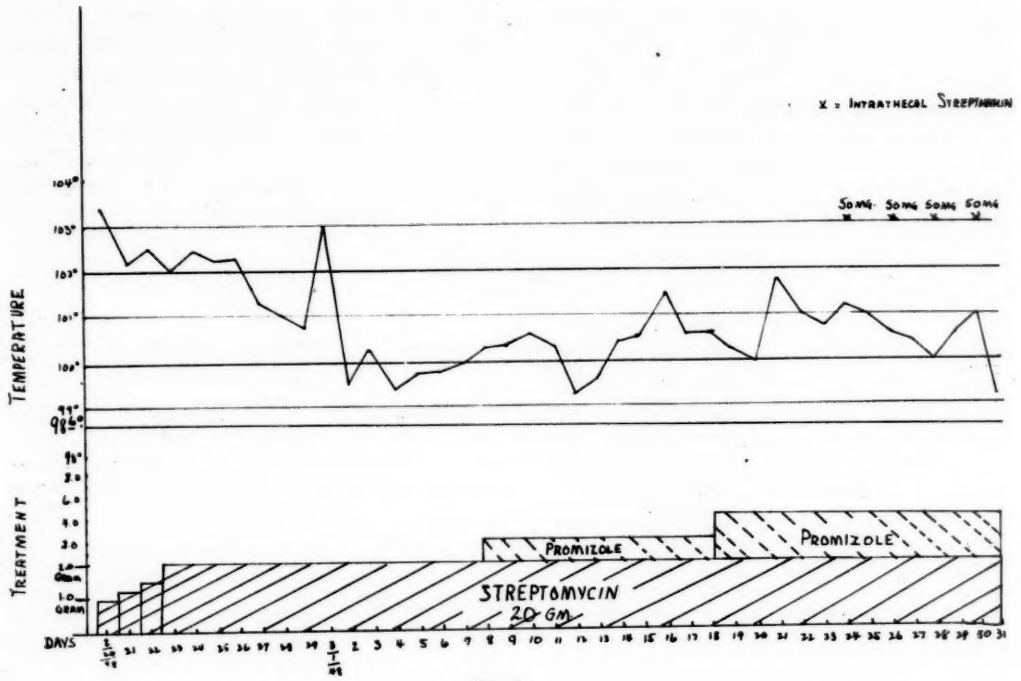

Fig. 2.

spinal arachnoiditis but in view of autopsy findings may have been renal in origin. Neurological examination revealed little but for hypoactive reflexes. Sensory examination was considered normal at all times. Streptomycin administration intrathecally (Fig. 2) was begun on March 24. 50 mg. of this was given in 10 cc. of normal saline. This was done every second day and because of the high protein and the possibility of a spinal arachnoid block cisternal punctures were done by Dr. George Craddock every other day from April 3 through April 11, 50 mg. of streptomycin being used each time. On April 14 the lumbar taps with intrathecal streptomycin 50 mg. were resumed. On April 16, 75 mg. of streptomycin was given. On April 18 and every second day 100 mg. of streptomycin was given intrathecally until April 24. By this time in spite of multiple transfusions, intravenous protein hydrolysates, glucose and vitamins she had become quite emaciated (weight went from 125 pounds to 75 pounds) because of nausea, vomiting, anorexia and severe headache. Streptomycin (Fig. 2) was given in the dose of 200 mg. every three hours from February 19 to March 18 at which time the dose was increased to 500 mg. every six hours from March 18 to April 24 when streptomycin was discontinued. On May 11, since she had shown definite improvement with the highest temperature reading in the past week being 99.4° F., she was dismissed on 8 gms. of promizole daily (Fig. 3). Complete examination revealed marked emaciation, moderate stiffness of the neck but no other pertinent physical findings. She did quite well at home, except for complaint of dizziness and nausea, and had little or no temperature elevation until June 7 when she began to have severe pains in her neck and arms and head with a temperature elevation to 101° and 102° F. daily. She again was nauseated and vomited and lost the five pounds in weight she had gained since being home. Physical examination revealed no findings other than those related to the meningeal irritation except that the patient was irrational and quite ill. She was readmitted to the hospital on June 17. Hemoglobin was 69%, red blood count 3,800,000 and white blood count 7,300. Polys were 83%, small lymphocytes 12% and large lymphocytes 5%. The urine showed a + 3 albumin with many pus cells. Temperature during the three days in the hospital ranged between 100° and 102.4° F. She was transferred to the University of Virginia Hospital on

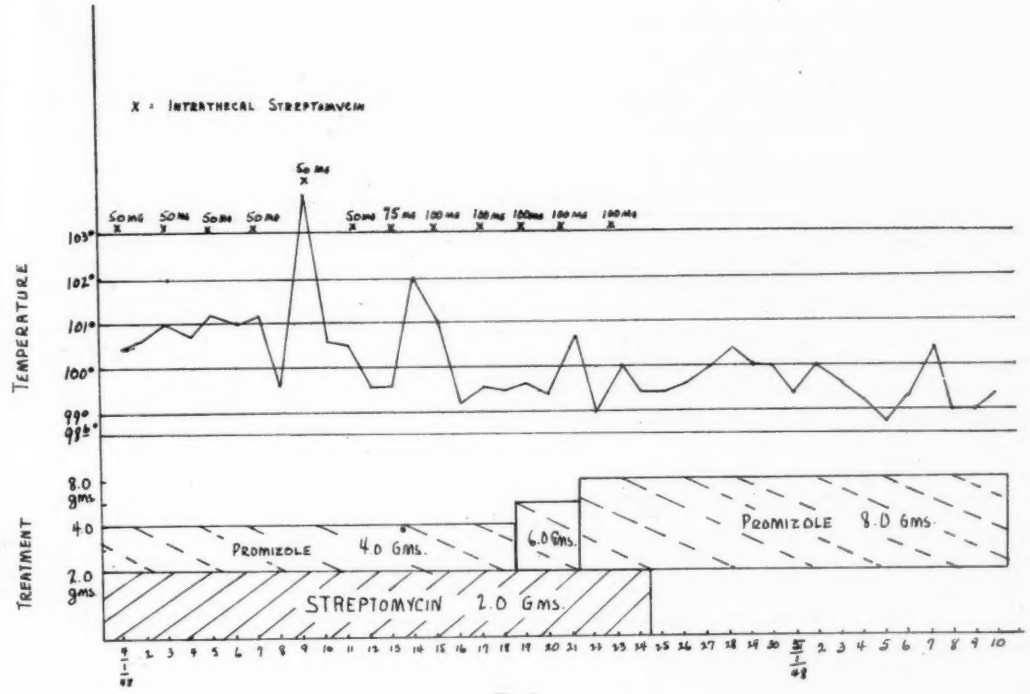

Fig. 3.

June 19, 1948.

Physical examination on admission at the University of Virginia Hospital showed a temperature of 101° F., a pulse of 100, respirations 16, blood pressure 120/80, and a fairly well developed but undernourished white female showing very evident weight loss. She was quite lethargic but complained bitterly if touched or moved. She apparently had a motor aphasia. No history could be obtained. The eyes were normal, the neck stiff. The chest was clear. The heart showed a normal rate and rhythm. There was a pericardial friction rub heard at the second interspace to the left of the sternum. There was marked wasting of the extremities. Reflexes were absent. On June 19 a lumbar puncture was done. Pressure was within the limits of normal. 8 cc. of bloody fluid were removed. On June 20 a lumbar puncture was done with the same findings and 100 mg. of streptomycin was given intrathecally. Likewise on June 24 a similar blood spinal fluid was found. She rapidly became more ill and died on June 27, 1948. X-ray films of the chest and skull showed no abnormalities of the skull and the lung fields were clear. Laboratory findings showed a cloudy white alkaline urine with specific gravity of 1.015 with + 1 albumin. The remainder of the findings were not remarkable except for the microscopic examination which revealed innumerable white blood cells. There were some small needle-like crystals resembling those of sulfanilamide seen in the urine. The blood showed 11 gms. of hemoglobin and a white blood count of 9,200 and a red blood count of 3,900,000. Tuberculin test was negative. Serology showed a negative Wassermann and 4 + Kahn, with a 4 units titer. Repeated examinations for tuberculosis in the spinal fluid were negative. Agglutination for Brucella and Widal was negative and the Weil Felix agglutinations were insignificant. The urine was cultured and showed the presence of B. Coli. Blood culture showed B. Coli and B. Aerogenes.

AUTOPSY REPORT

Autopsy was performed on June 28, 1948, at the University of Virginia and I am indebted to Dr. J. R. Cash for a very complete and careful study. For the sake of condensation negative findings have been omitted and it may be assumed that, unless otherwise stated, there was no abnormality.

The body showed extreme emaciation with almost

complete absence of subcutaneous fat and wasting of the musculature. Both lungs were bound down tightly to the parietal pleura by dense fibrous adhesions covering the entire surface. The pericardial cavity contained 75 cc. of clear yellow fluid. There was no fluid in the peritoneal cavity. There was a lymph node near the right auricle which measured 1 cm. in diameter and showed several caseous areas.

Lungs: There were small inconsequential scars in both lung apices in the centers of which there were hard caseous nodules from 1-2½ mm. in diameter. The tracheo-bronchial lymph nodes varied up to 1½ cm. in diameter. Several of them showed old, well encapsulated, caseous and fibrous changes. In the right lung there was a caseous yellow area measuring 2 cm. in diameter, and in the left lung there was a hyalinized area about ½ cm. in diameter.

Kidneys: The left kidney weighed 140 gms. and measured 11 x 7 x 3½ cm. The right kidney weighed 150 gms. and measured 12 x 7 x 4 cm. The right kidney showed many yellow mulberry-like areas on its cortex and in one portion this had eroded through the capsule and the process was present about the right adrenal. On section of the adrenal the process appeared to be superficial and did not affect the parenchyma. The left kidney to a lesser extent showed the same yellow masses spread over its cortex. The capsule stripped with moderate ease. On section the architecture of the kidneys appeared fairly normal, but there were many soft yellow areas scattered throughout the parenchyma. The ureters and the pelves of the kidneys showed no marked involvement except for the left kidney which showed some pyelitis. The ureters were patent and entered the bladder normally. The bladder showed a marked hemorrhagic cystitis.

G.I. Tract: There was an area in the first portion of the duodenum measuring ½ cm. in diameter that was black in color and appeared to be a defect in the mucosa. The wall, however, at this point was not indurated.

Adrenals: The left adrenal gland weighed 15 gms. and measured 6 x 5 x 1 cm. The right adrenal gland weighed 13 gms. and measured 7 x 3½ x 1½ cm. The right adrenal gland showed encroachment from the right kidney of yellow mulberry-like soft areas of infection; however, on section the cortex appeared normal. The left adrenal gland showed medullary autolysis but otherwise appeared normal.

Brain: The meninges covering the brain were cloudy with diffuse thickening, particularly along the base. There were innumerable pin head to pin point sized nodules along the superficial blood vessels of the brain. The lateral ventricles were more distended than usual and the vessels of the choroid plexus showed the same white dots along their course as did the vessels of the brain. The cerebral cortex showed no abnormality. The cerebellar cortex showed a small superficial caseous tubercle which had apparently ruptured into the meninges. This tubercle measured 3 mm. in diameter and had a dense well formed fibrous wall and caseous center. The spinal fluid was quite abundant and was a cloudy white in color.

MICROSCOPIC

Microscopic examination was carried out completely but only that portion which is pertinent to the case presented is given.

Lungs: The pleural surface showed well organized dense fibrous adhesions. There was minimal anthracosis and emphysema. Sections from the right apex showed a caseous area surrounded by a well-defined fibrous capsule. The immediate adjacent pulmonary tissue appeared normal. Special stain did not reveal acid fast bacilli. Other sections of the lungs showed moderate emphysema and an occasional small microscopic healing tubercle in the pulmonary tissue. One such area showed several Langhans giant cells, epitheloid cells and surrounding tufts of lymphocytes. The hilar lymph nodes contained much black pigment and scattered areas of healing tuberculosis. These areas had giant cells with central caseous portions and were surrounded by pink hyalin connective tissue.

Liver: The liver showed pericentral congestion and about some of the portal areas small pink staining masses of monocytes, lymphocytes and tissue debris. They also appeared to contain a hyalin type connective tissue. They were typical of healed and healing tubercles. They were microscopic in size.

Kidneys: The lesions described grossly in the kidneys proved to be pyogenic abscesses consisting of many polymorphonuclears surrounding much necrotic tissue. In several areas Gram positive cocci in large clumps could be identified. Purulent material was seen extending from the cortex to the pelvis along the course of the collecting tubules. The renal pelvis showed marked congestion and hemorrhage as well as lymphocytic and polymorphonuclear

infiltration. The process was apparent in both kidneys.

Adrenals: The cortex of both glands showed marked vacuolization of the cells. The medullary portion showed no remarkable changes other than congestion.

Spleen: The spleen was congested. There were numerous microscopic well circumscribed areas composed of hyalin connective tissue, lymphocytes, monocytes and an occasional polymorphonuclear. Although these areas were frequent, none of them contained any giant cells. They had the appearance of healing tubercles.

Lymph Nodes: The axillary lymph nodes showed small hyalin masses of connective tissue, an occasional one containing a Langhans type of giant cell. The tubercles were distinctly healing.

Pituitary: In the fibrous capsule surrounding the pituitary gland there were several accumulations of lymphocytes. The gland itself showed no striking pathological changes.

Brain: Sections from the frontal cortex showed edema, scattered lymphocytes, macrophages and congestion in the meninges. The parietal and occipital meninges showed similar changes. The process was most marked in the occipital area with macrophages containing hemosiderin being present. No remarkable changes were seen in the tissue of the cortex. Small subependymal groups of epithelioid cells surrounded by lymphocytes were present in the wall of the lateral ventricles. The cerebellum showed a caseous area extending from the brain tissue to involve the meninges. The area was surrounded by epithelioid cells, lymphocytes, plasma cells and scattered Langhans giant cells. The meninges of the pons, the spinal cord and their nerves were heavily infiltrated by lymphocytes and plasma cells.

Two sections from the caseous area in the lung, sections of the cerebral cortex, the basal ganglia, the caseous area in the cerebellum, and the hippocampus and spinal cord were made and stained for acid fast bacilli. Careful search showed only four typical acid fast bacilli in the meninges of the inferior lateral portion of the section of the basal ganglia. The caseous areas in the cerebellum and lung as well as other sections stained were negative for acid fast bacilli.

ANATOMICAL DIAGNOSIS

(1) Bilaterial apical healing pulmonary tuberculosis. (2) Healing disseminated tuberculosis of lungs, liver, spleen, tracheobronchial and axillary lymph nodes. (3) Caseous cerebellar tubercle with extension to meninges. (4) Tuberculous meningitis with marked attempts at healing. (5) Early internal hydrocephalus. (6) Bilateral pyelonephritis (Gram positive cocci) with multiple abscesses. (7) Acute hemorrhagic cystitis.

COMMENT

The time relation of dissemination to the development of meningeal signs can be estimated fairly accurately in the case reported. Onset of pleural effusion was January 9 and she again became febrile on about February 13 with early symptoms of meningitis on about February 20 and definite signs of meningitis on February 23. At the time streptomycin therapy was instituted on February 19 there was only a febrile state without meningeal signs. In retrospect, it would seem that the pleural effusion was a manifestation of disseminated tuberculosis, a latent period of several weeks, and then a manifest meningeal involvement.

In retrospect, the therapy may be criticized for failure to use intrathecal streptomycin early in the course of the illness. A lack of early adjuvant therapy with promine or promizole in adequate dosage also failed to allow maximal advantage in therapy, but the actual importance would not seem to be great. Our primary hope was that promizole would be a sheet anchor in preventing relapse after discontinuation of streptomycin. This it did not do entirely.

In view of the renal lesions present at autopsy, the importance of the bladder and renal infection by coliform organisms in the patient's illness may have been underestimated. Urinary retention in the earlier course of her illness was so complete that continuous drainage by an indwelling catheter became necessary over a prolonged period. This was the apparent source of the pyelonephritis and chemotherapy was ineffective. Penicillin, sulfadiazine, mandelamine, and tablets of combined sulfadiazine, sulfamerazine and sulfathiazole were used as adjuncts to streptomycin with beneficial effect apparent in the control of the urinary infection but with a final recurrence which was important as a cause of death.

It is of interest to note that streptomycin therapy was begun before manifestations of meningeal involvement were noted. Hence, early therapy in this case made no apparent difference. If the meningitis

was related to the caseous area in the cerebellum, as seemed likely, and the brain tissue contained no streptomycin, as noted in studies mentioned before, the reason for this is apparent.

SUMMARY

A 34 year old white female with a generalized miliary tuberculosis and tuberculous meningitis was treated with streptomycin administered intramuscularly and intrathecally and with promizole. She survived from January, 1948, to June, 1948, on this therapy. Autopsy revealed microscopic evidence of partial healing of the tuberculous lesions but acid fast bacilli could still be found in the brain. A pyelonephritis complicated her illness. This was due to urinary retention, catheterization, etc. This added to the gravity of her condition and made therapy a combined problem.

Miliary tuberculosis and tuberculous meningitis still has a poor outlook in spite of newer methods of therapy. The use of promizole and streptomycin in combination caused marked healing of the tuberculous lesions but did not prevent a lethal exodus.

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1378 Rivermont Avenue.

New Directory Shows One Doctor for Every 750 Persons in U. S.

The United States at the beginning of 1950 had one doctor for every 750 persons. This is the best showing for any nation in the world, with the exception of Palestine where a temporarily high ratio exists because of an influx of refugee doctors.

Next to the United States, the largest supply of doctors in relation to population exists in Great Britain where, based on latest available official figures, there was one doctor for 870 persons. Other countries in order are: Iceland, 890; Denmark, 950; Canada and New Zealand, 970. Other nations range from 1,100 persons per doctor to 25,000 persons per doctor, a situation which exists in China.

The ratio for this country was revealed by Dr. George F. Lull, Chicago, secretary and general manager of the American Medical Association. It was based on an estimated national population of 151,000,000 and 201,278 doctors whose names will be contained in the eighteenth edition of the American Medical Directory, to be issued about June 1.

The new directory will contain 2,913 pages, or 112 more than the previous record volume issued in 1942. It will list the names, year of birth, medical school and year of graduation, specialty, if any, and addresses of physicians in Canada and the United States dependencies, as well as of those in the United States.

XUM

THE TUBERCULIN TEST IN YOUNG CHILDREN AS AN AID IN ADULT TUBERCULOSIS CASE FINDING*

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In spite of evidence that those children infected with tuberculosis before the age of three years bear a serious prognosis,[1] there is a tendency among the majority of practitioners, including many pediatricians, to eschew the use of routine tuberculin tests in the young child. Such a practice is to be decried.

As Park[2] has said, "There is more than one way of telling whether or not an adult has an open tuberculous lesion; one can find the bacilli in his sputum or one can find the infection in his baby." Or, stated another way, the diagnosis of tuberculous young children and the subsequent follow-up of possible adult contacts by x-ray is a most effective means of finding adults who have tuberculosis in a communicable stage. The majority of these young children have relatively few close contacts, and it is usually easy to find the tuberculous adult. In the Children's Chest Clinic of the Medical College of Virginia forty-one tuberculin positive children three years of age and under are now being followed. Without appreciable social service assistance the tuberculous contact has been demonstrated in thirty-six instances.

As far as case finding is concerned, the child under three years of age, who is tuberculin positive and has no other demonstrable pathology, is just as important as the one with a more serious manifestation of the disease. All tuberculin positive children in this age group are presumed to have active tuberculous infection,[3] because there has hardly been time for the infection to become inactive. If they are infected at all, it behooves the practitioner to advise follow-up of all possible adult contacts. If the physician waits for the appearance of symptoms in the small child, he is not only very late as far as this particular child is concerned, but he completely misses all the symptom-free, tuberculin positive children, a much larger and, therefore, as far as case finding is concerned, more important group.

Nor is the approach to tuberculous infection in young children by means of chest x-ray alone satisfactory. This method fails to locate the symptom-free, x-ray negative, though tuberculin positive, children.

Following are examples of routine case finding from tuberculin positive children:

Case 1. P. S., age 2 years, was brought to our office for routine examination. He had no symptoms, and physical examination and laboratory studies were essentially normal. Tuberculin patch test was strongly positive. His father had been discharged from the Navy only a few weeks before and was x-ray negative at that time. His only other close contacts were his mother, who was seven months pregnant, and his negro nurse. The latter was also scheduled to take charge of the expected baby. A chest x-ray was advised for both nurse and mother. The mother was shown to have no tuberculosis, but the nurse was found to have tuberculous pneumonia.

Case 2. G. E. B., a thirteen months old colored female, was admitted to Dooley Hospital on December 29, 1947, with diagnosis of pertussis complicated by pneumonia. Treatment with pertussis hyperimmune serum and chemotherapeutic agents improved the cough, but the lung pathology, demonstrable by x-ray, persisted. Tuberculin test was positive, and gastric washings revealed tubercle bacilli.

On follow-up, two siblings were found to be tuberculin positive. Adult contacts were x-rayed, and the father was found to have far advanced pulmonary tuberculosis.

Case 3. S. A., an eight months old colored male, was seen in a city child welfare clinic with a respiratory infection and temperature of 102 degrees. History at that time revealed no tuberculosis contact, but the maternal grandfather had died with pulmonary tuberculosis. The infant was admitted to Dooley Hospital with tentative diagnosis of tuberculous pneumonia, confirmed later by a positive tu-

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berculin test, area of increased density in lung parenchyma on chest x-ray, and the demonstration of tubercle bacilli from gastric washings.

The patient's mother refused to submit to either a tuberculin test or chest x-ray. Six weeks later, she died suddenly in the St. Philip's Hospital emergency room with far advanced pulmonary tuberculosis, proved at autopsy.

Two siblings and one cousin have positive tuberculin tests and are being followed in the Children's Chest Clinic of the Medical College of Virginia. All the other adult members of the household (two uncles, four aunts, and grandmother) have negative chest x-rays.

DISCUSSION

Routine tuberculin tests are of greater significance in the young age group, because of the relatively small number of possible contacts. A positive tuberculin test in a child under three years of age usually means that there is a tuberculous adult near at hand. The likelihood of a chance contact is not great. It should be added here that one should not forget the grandparents, other relatives, nurse, or other household servants when searching for contacts. Recently, we had a one year old child who was found to be tuberculin positive. The maternal grandmother was known to have healed minimal pulmonary tuberculosis, and all other members of the household were shown to be free of the disease. Accordingly, the grandmother was assumed to be the contact, although tubercle bacilli could not be demonstrated from her sputum. Some months later, the gardener, who often played with the child and who had not been previously examined, came to his employers and told them that he had been to the clinic and had active "lung trouble and must go away to the sanatorium."

In our private practice all new patients more than a few months of age receive a tuberculin test. In our hands, the so-called Vollmer patch test[4] has been satisfactory. The test is reasonably sensitive and eliminates the "needle bugaboo." Before applying the patch between the scapulae, the skin is thoroughly cleansed with acetone. Written instructions are given the parent that water must be kept away from the patch and the patch must be removed after forty-eight hours. Reading is done forty-eight hours after removal of the patch.

The patients seen in the Children's Chest Clinic at the Medical College of Virginia have usually been tuberculin tested before admission to the clinic. But here, too, as shown in the examples cited above, the demonstration of tuberculin positive children often leads to the diagnosis of communicable adult tuberculosis.

SUMMARY

Routine tuberculin tests are especially valuable in children under the age of three years. The likelihood of chance infection is not so great in this age group, and follow-up of possible contacts is relatively easy. Since the majority of tuberculous children show no physical or roentgenological evidence of the disease, failure of the physician to employ the tuberculin test often means failure in diagnosis.

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414 West Franklin Street.

DISSECTING ANEURYSM OF THE AORTA WITH COMPLETE OCCLUSION AT THE BIFURCATION SIMULATING SADDLE EMBOLISM*

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Obstruction of main arterial branches of the aorta by dissecting aneurysm may produce symptoms and findings suggesting embolic occlusion which in turn may lead to fruitless surgical intervention. This is especially true when the dissecting aneurysm suddenly obstructs the subclavian or iliac arteries, producing sudden pain, cyanosis, coldness, flaccid paralysis and absent arterial pulsation in the affected limb. The importance of differentiation between embolic obstruction, which is often amenable to prompt surgical intervention, and obstruction due to a dissecting aneurysm, which is not amenable to surgery, is obvious.

The case to be presented well demonstrates the clinical similarities in the two conditions, the difficulty in differentiating between them and the features which conclusively indicated the presence of a dissecting aneurysm rather than a saddle embolism.

CASE REPORT

W. B., hospital number 4060, a 52 year old white male, was admitted to the Baker Veterans Administration Hospital at 11:30 A.M., June 27, 1948, complaining of excruciating pain in the sacral area and paralysis of his lower extremities of 3½ hours duration.

The patient, who had retired early on the previous evening feeling quite well, had awakened at 8:00 A.M. after a good night of sleep and had gone to an outdoor toilet where he had urinated and had a normal bowel movement. Just as he returned to the house he was seized by acute agonizing substernal pain. Within 15 minutes he began having severe pain in his lower back and lower extremities and within a half-hour he was unable to move either leg. His local physician gave his two hypodermic injections of morphine which completely relieved his chest pain, but did not relieve his low back pain. He was then brought to this hospital by ambulance.

Inquiry regarding the patient's past medical history revealed that he had a sudden attack of low back pain with paralysis of both lower extremities fifteen years before which had cleared up entirely after a few days of bed rest. That episode was attributed at subsequent hospitalization to a ruptured intervertebral disc. No surgery was advised or performed despite continued back pain over the succeeding years. He also stated that he had arthritis of his spine. The patient had been told that he had high blood pressure for the past six years, the systolic values alledgedly ranging between 180-200 mm. Hg., the diastolic readings not having been mentioned. One month prior to the present episode he had a sudden attack of severe substernal pain for which he was hospitalized for two weeks with apparent complete recovery.

Except for his chronic back pain and for moderate nocturia the patient had no recent complaints. He was never dyspneic, edematous nor did he have exertional angina.

Physical examination on admission revealed an obese white male complaining bitterly of pain in his lower back. His pulse was 152 per minute, respirations 20 per minute, and temperature 99.2 F. rectally. The pulse was of paradoxical type and much weaker on the left than on the right. The blood pressure in the right arm was 165/100 mm. Hg., and in the left was 110/80 mm. Hg.

The pupils were constricted, probably due to morphine. The neck veins were not abnormally distended. Expansion of the thorax was equal bilaterally. Percussion of the chest revealed normal resonance over both lung fields. The left border of cardiac dullness extended to 2 cm. to the left of the midclavicular line. Auscultation revealed no pulmonary rales. The heart sounds were somewhat distant, but no friction rub or murmurs were heard.

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From the Newton D. Baker Veterans Administration Hospital.

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Palpation of the abdomen disclosed no masses or tenderness. The lower abdominal wall was flaccid. Pulsation of the abdominal aorta could not be felt. There was a mottled gray cyanosis of the skin of the trunk below the level of the umbilicus, which also involved both lower extremities. The abdominal reflexes were absent. There was diminished sensation over the lower abdomen which merged with anesthesia of the extremities. There was complete flaccid paralysis, anesthesia and areflexia of both lower extremities. There was complete absence of pulsation of femoral, popliteal, posterior tibial and dorsalis pedis arteries bilaterally. There was cadaveric coldness of both lower extremities. Rectal examination was negative; there was normal colored stool on the examining finger.

Laboratory studies showed an erythrocyte count of 3.2 million with a hemoglobin level of 9.5 gm. per 100 cc. of blood. The leukocytes numbered 10,500 per cu. mm. Urinalysis revealed a faint trace of albumen, sp. gr. of 1.005 and only an occasional granular cast and leukocyte in the sediment.

The immediate impression based on the dramatic manifestations of pain, cyanosis, bilaterally absent femoral pulsation, paralysis and coldness of the lower extremities, was that we were dealing with a massive saddle embolus lodged at the bifurcation of the aorta. The relatively over-shadowed physical findings of unequally forceful radial pulsations quantitatively demonstrated by the markedly lower blood pressure reading in the left than in the right arm; forced consideration of an aortic lesion at the level of the left subclavian artery; and the paradoxical pulse suggested cardiac tamponade.

The patient's chest was therefore examined under the fluoroscope and no pulsation of the cardiac silhouette was seen. A needle was then passed into the pericardial sac. Blood was obtained, demonstrating tamponade due to hemopericardium.

On the basis of these findings the diagnosis of dissecting aneurysm of the aorta was made. It was postulated that the dissection involved the entire length of the aorta with partial rupture of the intrapericardial portion resulting in hemopericardium; partial occlusion of the left subclavian artery resulting in the lower blood pressure in the left arm; occlusion of the vertebral arteries, resulting in paraplegia; and complete occlusion of the aorta at the bifurcation resulting in the signs of ischemia of the lower extremities previously described. It was felt that the mesenteric and renal arteries were spared since there were no abdominal symptoms or signs, nor was blood found in the urine or feces.

The patient's condition rapidly deteriorated, his blood pressure slowly fell (always remaining considerably lower in his left than in his right arm) and he died at 3:40 A.M. on the morning following admission, 18 hours after the onset of his symptoms.

At autopsy there was marked cyanosis below the level of the umbilicus. There was 250 cc. of partially clotted blood in the pericardial cavity. The heart was enlarged (675 grams). There was separation of the commissures of the aortic valve with hyalinization and calcific plaques in the sinuses of Valsalva. The ostia of both coronary arteries were narrowed. There was a transverse tear in the aortic wall 3½ cm. above the aortic valve. This tear extended through the thickness of the aorta and into the aortic reflection of the pericardium. The entire aortic intima showed advanced arteriosclerotic changes with atheromatous plaques and ulcers. From the point of the tear in the aortic wall the dissecting aneurysm extended through its entire length separating the outer one-third of the media from the remainder of the vessel. The false channel was of about the same caliber as the aorta and lay posteriorly and to the left. It involved all of the small arteries including the intercostals and lumbars. The renal and mesenteric vessels were spared. At the bifurcation of the iliacs there was an extensive clot in the aneurysm completely occluding the lumen. There was seepage of blood into the retroperitoneal tissues and into the psoas muscles. The left pleural cavity contained 500 cc. of clotted blood. The peritoneum was smooth and glistening. The abdominal viscera showed no changes. The kidneys were grossly normal except for moderate arteriosclerotic scarring.

DISCUSSION

In Shennan's[1] exhaustive review of the literature up to 1934 he notes that only six of the 302 cases of dissecting aortic aneurysms reported up to that time were diagnosed prior to death. Although the number of correct ante-mortem diagnoses of the condition is increasing, it still does not exceed 25% of the cases reported in recent series.[2,3] The chief difficulty in making a correct clinical diagnosis is the bizarre, wide-spread and apparently unrelated symptoma-

tology and physical findings. Since the aorta supplies blood to the entire body it becomes apparent that diversity of symptoms and findings is to be expected when this structure becomes involved by disease. The clinical picture is attributable to three factors.

1. The dissecting process: As the split in the media progresses, severe pain is experienced localized roughly to the area involved and extending downward and upward as the dissection progresses.

2. Vascular occlusion: The dissecting column of blood may obstruct the aortic branches at their orifices or by extension of the dissection along the branches. Not all branches are involved, some being by-passed and spared, thus contributing to the spotty clinical picture. This phase gives rise to the signs of ischemia. Thus obstruction of the coronary ostia gives rise to symptoms of myocardial infarction; of the carotid, to neurologic findings such as hemiplegia and aphasia; of the subclavian, to arterial ischemia of the upper extremity; of the visceral arteries, to visceral infarction; of the intercostal, lumbar and sacral arteries, to paraplegia; of the renal arteries to renal infarction; and of the iliacs to arterial ischemia of the lower extremities.

3. Rupture: Sudden massive exsanguinating rupture quickly results in death. Such a catastrophe robs differential diagnosis of much point. Small tears are common, however, and may result in hemopericardium, hemothorax (almost invariably on the left side), or bloody extravasation whenever the rupture occurs.

It is the very diversity of findings, the discontinuity of the clinical picture, that suggests the presence of a dissecting aneurysm, for in almost every instance of the disease more than one vascular system is involved, giving rise to changes which, if sought for and properly interpreted, will elicit the correct diagnosis.

The point we wish to emphasize is that dissecting aneurysm should be considered in the differential diagnosis of all sudden arterial occlusions. With this possibility in mind one should seek for involvement of other vascular systems. Evidence of such involvement may be minimal, as is well brought out in the case reported by Greene and Saphir.[4] Their patient presented the typical findings of embolism of the left iliac artery. Surgical intervention was considered until ecchymosis of the left abdominal wall suggested that the iliac obstruction was only part of a more extensive process which they deduced was a dissecting aneurysm of the aorta extending along the iliac and deep inferior epigastric artery. At autopsy their reasoning was verified.

In our case the sudden bilateral iliac occlusion pointed so strongly toward a saddle embolus that surgery was also contemplated. However, the relatively obscure findings of unequal radial pulsation suggested partial subclavian occlusion; and paradoxical radial pulsation suggested hemopericardium, as was subsequently verified by pericardial aspiration. The composite picture convinced us that the underlying process was a dissecting aneurysm and plans for surgical intervention were abandoned.

The fact that a number of reports of surgical intervention for supposed embolus proved to be cases of dissecting aneurysm makes us feel that this report may be of value.[5,6]

SUMMARY AND CONCLUSIONS

A case is presented in which a dissecting aneurysm of the aorta produced complete occlusion at the bifurcation simulating a saddle embolus. Surgical intervention for the purpose of removing the supposed embolus was entertained until the relatively obscure findings of unequal and paradoxical radial pulsations led to the discovery of partial subclavian occlusion and hemopericardium. The diversity of the vascular findings, in turn, led to the diagnosis of dissecting aneurysm and to the abandonment of contemplated surgery. It is suggested that dissecting aneurysm should be considered in all cases of acute major vascular occlusion and that signs of involvement of other vascular systems may establish the diagnosis.

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XUM

PRIMARY CANCER OF THE LUNG*

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Carcinoma of the lung is now recognized as one of the common tumors in man. In necropsy statistics from general hospitals on the frequency of occurrence of carcinoma, it usually ranks third, being exceeded by carcinoma of the stomach and carcinoma of the large bowel. In a review of 93,560 collected necropsies reported by Steiner[1] in 1944, 925, or 0.99 per cent, were carcinoma of the lung. This group represented 9.4 per cent of all those diagnosed as carcinoma. It seems to be universally agreed that carcinoma of the lung is seen more frequently now than in former years. However, there have been considerable differences of opinion as to whether or not the increase is relative or real. It was Simons's[2] opinion, from extensive review of the literature, that the increase in incidence is absolute and not only apparent. Steiner,[1] in an attempt to answer this problem, reviewed 5,515 consecutive necropsies performed at the University of Chicago between the years 1902 and 1941, inclusive. Of this group, 126 were diagnosed as lung carcinoma, an incidence of 2.3 per cent. There were 1224 carcinoma cases of all types found, which gave an incidence of lung carcinoma in this latter group of 10.3 per cent. From a comparative study of the incidence of other tumors, it was his conclusion that the increase was more apparent than real. Macklin,[3] after surveying the data and the methods used, concluded that although the increase in lung cancer is definite, the absolute increase was not as marked as most of the authors have stated.

The increase in incidence has been ascribed to several factors: (1) increase in longevity, and since this disease occurs almost exclusively in older age groups, an increasing incidence of lung cancer is to be expected; (2) improved methods of diagnoses. The widespread utilization of roentgen, bronchoscopic and other methods of diagnosis has served to more accurately diagnose pulmonary cancer which in former years had masqueraded as pulmonary tuberculosis, unresolved pneumonia, chronic lung abscess and chronic pneumonitis. It must be remembered that the first successful pneumonectomy for bronchogenic carcinoma was performed by Graham[4] only sixteen years ago. The knowledge that pulmonary resection can now offer hope to these individuals who formerly were doomed to an early death in every case so diagnosed, has served to stimulate physicians to become cancer-conscious. As a natural consequence, interest in chest diseases and particularly in thoracic surgery has received an impetus which promises, from all the available evidence to date, to offer a greater degree of optimism for the future handling of these patients than has ever existed before. At the present time, mass chest x-ray surveys are being conducted throughout the country in an attempt to find pulmonary lesions in their pre-symptomatic stage, when treatment, properly and promptly instituted, offers the best chance for cure. The proper identification of these early forms of intrathoracic disease demands serious attention. The tendency on the part of physicians to minimize the significance of these lesions can only lead to disaster. The all too common tendency on the part of physicians to reassure the patient and ask him to return in several months for a check-up, only to find that a small density has extended into a stage of inoperability, is much too common a history. In no other disease process is time so dangerous an enemy. Without exception, a policy of watchful waiting leads to ultimate death. In a series of cases recently reported by Ochsner,[5] in those cases in which resection was not done, no patient survived for as long as three years.

ETIOLOGY

Up to the present state of knowledge, there is no one known cause of pulmonary cancer. Chronic inflammatory diseases of the lungs, influenza, roentgen ray, constant exposure to gases, fumes and dusts, tobacco smoking, have all been mentioned as possible causes. The chemical action of inhaled radioactive dusts has been used to explain the frequency of tumors among the Schneeberg miners.[6]

Sex Incidence. Lung cancer has its greatest incidence in the male sex. The percentage among men has varied in the different reports from 75 to 91 per cent.[2,7,8,9,10,11]

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Age Incidence. Almost 90 per cent of the cases reported by Ochsner, *et al.*,[12] were in the fifth, sixth and seventh decades Ninety-six per cent of 157 cases reported by Adams[13] were over 40 years of age. Simons,[2] in a careful perusal of the literature prior to 1937, found only 14 cases in persons under 20 years of age. Since then, several additional cases have been reported in this age-group.[8,12,14]

Color Incidence. Lung carcinoma is found to be twice as frequent among the white race as compared to the colored race.[12,15]

PATHOLOGY

Bronchogenic carcinoma arises, with few exceptions, from an undifferentiated stem cell in the basal membrane of the bronchus. Microscopically, they are usually classified into three types: Squamous cell carcinoma is the most frequent. It offers the best prognosis, as it grows slowly and metastasizes late. Undifferentiated cell type (small cell) is slightly less frequent and the third type, adenocarcinoma, occurs in approximately 20 per cent of all the cases. Both the undifferentiated and adenocarcinoma are more rapid in their progress, metastasizing early with a correspondingly poor prognosis.

Gebauer,[15] in a scholarly presentation of the subject, believed that in the majority of cases, each type of pulmonary cancer has its own peculiarities at the onset and that these differences become more pronounced as the disease advances. In a series of 158 proven cases, he subdivided them as follows: small cell carcinoma—53 cases; adenocarcinoma—32 cases; squamous cell carcinoma—61 cases, and the remaining 12 cases as carcinoma simplex—5, and type unknown—7. In the group of small cell carcinoma, 66 per cent arose in the main stem bronchi and the remainder frequently began near the orifice of a secondary branch. The formation of an irregular mediastinal mass is characteristic of this centrally located and rapidly growing tumor. It is highly invasive and extends along the bronchus, and surrounds it and the neighboring structures with firm tumor. In the group of adenocarcinoma, 70 per cent arose in the secondary branches, such as the lobar stems. Peripheral growth was more marked than its central extension. It thus may form a well circumscribed mass which appears as a nodule in the lung. Commonly found at autopsy was widespread, blood-borne metastases as well as lymphatic metastases, with diffuse involvement of the mediastinal lymph nodes. In the group of squamous cell carcinoma, 70 per cent arose in the first branches of the main stem bronchi. The tumor extends centrally along the bronchus causing a fixation and constriction of this structure. It seems to avoid the lymph nodes. Local growth results in the formation of a nodular mass about the bronchus of origin. In general, these metastasize late and, even then, not nearly as extensively as the other two types. These tumors exhibit cavity formation in over 50 per cent of autopsy cases.

The right lung is more frequently involved than the left lung. Ochsner[16] found that 59 per cent of his cases were in the right lung and 41 per cent in the left. In review of the 2177 cases from the available literature by Simons[2], it was similarly found that 1145 involved the right lung, and in 992 the left lung was involved. The upper lobes are more frequently the sites of predilection than the lower.[2] In Ochsner's[16] series, 50.9 per cent were in the upper lobes, 28 per cent in the right upper lobe and in 22.9 per cent, the tumor was in the left upper lobe.

The widespread distribution of metastases in primary carcinoma of the lung is a characteristic feature and constitues the most important single prognostic factor. The modes of metastatic extension are as follows: (1) direct extension, (2) bronchial intraluminal extension, (3) hematogenous and (4) lymphatic. In a series of 3047 collected cases by Ochsner[17] the regional lymph nodes were involved in 72 per cent. The next most frequent site of involvement was the liver (33 per cent). The pleura was next in frequency with 29.8 per cent, and in diminishing order came the lungs, bone, adrenals, kidneys, brain, heart, pericardium, pancreas, peritoneum, gastro-intestinal tract, skin, spleen, thyroid, tonsil and tongue. Subcutaneous metastatic nodules have been noted on the chest wall, scapular region, abdominal wall, the course of the spine and upper extremities. Although infrequent,[18] (2.8 per cent of 1063 cases), they should always be searched for in every suspected case. They are usually small and shotty, less than 2 cm. diameter, but occasionally are much larger. Ochsner[17] also showed that lymphatic metastases may occur in other groups of nodes in addition to the tracheo-bronchial group. The most frequent sites were as follows: abdominal (20.7 per cent), cervical (17.4 per cent), retroperitoneal

(8.1 per cent), iliac (6.8 per cent), axillary (6.6 per cent), and in diminishing frequency in the peripancreatic, supraclavicular, peribiliary, submaxillary and femero-inguinal nodes.

SYMPTOMS

There are no characteristic symptoms and signs of bronchogenic carcinoma. The onset of the condition is usually insidious and the symptoms are likely to be attributed to some other cause. Rarely, these lesions may be found on routine roentgenographic studies without any symptoms.

The frequency and type of symptoms presented at the onset will depend a great deal on the location of the lesion. Those that originate in the major bronchi will usually complain of cough early, which, while of a non-productive character at the onset, will usually become productive later of a mucoid type of expectoration. These patients will also occasionally complain of a faint audible wheeze which they had never experienced before. Slight asthmatic wheezing is a very important early symptom. This, when associated with audible wheezes over a localized area of the chest, can only mean one thing, partial bronchial obstruction. Hemoptysis, the result of endobronchial ulceration, likewise is a relatively frequent symptom in the hilar type of lesion. Abbott,[19] in a study of 187 cases with bronchogenic neoplasms, found that 53.6 per cent described this symptom. In his experience, after the age of 40, carcinoma was the leading cause of hemoptysis. As the tumor grows and causes obstruction, secondary symptoms as a result of the sequelae from the obstruction (atelectasis, bronchiectasis, lung abscess) will predominate. These produce such symptoms as increase in cough with purulent expectoration, chest pain, fever and dyspnea. Generally, the larger the bronchus involved, the more extensive will be the results of the obstruction and the more pronounced the symptomatology. In the more peripheral type of tumor, pain may be the only early symptom, and the cough, when it does develop later, will be unproductive for a long time. Frequently, these tumors give rise to no pulmonary symptoms until long after distant metastases have occurred. In Ochsner's experience, many of the patients dated the onset of their illness with an acute respiratory infection which failed to clear in the usual length of time. The other symptoms, hoarseness, dysphagia, weakness, anorexia, weight loss, clubbing of the fingers, usually occur late and are of no diagnostic benefit in an attempt at an early diagnosis.

Superior sulcus tumors, because of their location in the apical bronchi, frequently give rise to additional symptoms which may be of diagnostic significance. These usually consist of pain near the tip of the shoulder and about the shoulder girdle and occasionally extend down the arm on the involved side. Horner's syndrome on the homolateral side may be produced by impingement of the tumor on the sympathetic nerves.

The duration of symptoms in the reported series varies considerably, but generally the interval from the onset of symptoms and death is relatively short. In Feld and O'Malley's[20] series, the total duration of life from the onset of symptoms to death averaged only 14.5 months.

PHYSICAL FINDINGS

One of the great difficulties in the diagnosis of pulmonary carcinoma lies in the fact that the physical findings are variable and not peculiar to this disease. In fact, the signs commonly attributed to this disease are due to bronchial obstruction. Significant manifestations are more likely to be encountered if the tumor encroaches on the lumen of larger bronchi or on the pleura. A relatively small tumor completely occluding a main stem bronchus will produce classical signs of atelectasis. On the other hand, a peripherally located tumor, even one of considerable size which does not cause obstruction to a major bronchus or encroach on the pleura, may produce relatively few physical signs.[21]

DIAGNOSIS

Roentgenologic Studies. The roentgen film comprises our first line of defense in the diagnosis of pulmonary neoplasm. A diagnosis of primary lung cancer was made by roentgenography or stated as a positive suspicion in 96.7 per cent of the cases reported by Adams.[13] Westermark[22] and Rigler[23] have emphasized the importance of inspiratory and expiratory films for the early diagnosis of bronchial tumors. Partially obstructing bronchial lesions may cause a valve-like action so that inspired air reaches the lung during inspiration, but with the normal narrowing of the bronchus on expiration, the air cannot escape and so is retained in that part of the lung peripheral to the stenosis. When the stenosis becomes complete, obstructive atelectasis

results. Gebauer,[15] as a result of his investigations of the behavior of the different types of carcinoma, believes that each type produces a rather characteristic x-ray, which, of course, is varied by the age and location of the tumor:

a. Small cell carcinoma.—Early, it is usual to see an irregular mass which blends with the mediastinum and does not have a sharp outline. The primary mass enlarges rapidly and extends principally into the mediastinum.

b. Adenocarcinoma.—Early, one frequently sees a sharply circumscribed dense mass which, for the most part, is separate from the mediastinum. Late, there is little to distinguish it from the other types.

c. Squamous cell carcinoma.—Early, one sees a nodule in the lung which is not entirely peripheral and is less sharply circumscribed than the primary adenocarcinoma. Growth of the tumor tends to produce occlusion of a secondary bronchus (where it originates in 70 per cent of cases) and to cause lobar atelectasis. Necrosis and cavitation of the primary tumor may occur early and make the radiograph indistinguishable from that of lung abscess.

Fluoroscopy. This should be a definite part of the routine in any thorough chest study. Here, one gains specific information concerning diaphragmatic excursions, the position of the mediastinum, the presence or absence of localized expiratory emphysema, and, if the mass is in the mediastinum, whether or not it pulsates. By rotation of the patient, one can determine whether the mass is separate from the mediastinum and, also, the retrocardiac space can be visualized. Finally, from one's fluoroscopic observations, it may be possible to aid in the selection of what radiographic positions will best demonstrate the pathology present.

Bronchoscopy. Next to roentgenoscopic and roentgenographic study, bronchoscopy is the most important procedure in evaluation of the patient under observation for lung cancer. The bronchoscopist must be utilized, not as a mere technician with no knowledge of the case, but his position should be that of a consultant, one with whom the clinician has discussed the case thoroughly prior to bronchoscopy and who is completely aware of the possibilities present. It must be emphasized that not every case of suspected pulmonary tumor will be benefited diagnostically by endoscopic study. Obviously, circular-appearing masses which are proven by x-ray study to be beyond the major bronchi will not yield any information to the endoscopist. The bronchoscopist is not only of help in localizing the lesion, but can be of considerable help in determining the operability of a given tumor. His investigations, therefore, must be complete in every detail. The importance of a satisfactory biopsy of any suspicious tissue cannot be over-emphasized. Adequate study in this fashion has yielded positive results in 70 to 89 per cent of cancer patients bronchoscoped.[14,15,24,25] However, it must be emphasized that the reason for these high percentages was because most of the cases were far advanced and inoperable. It could not be anticipated that such figures would apply to early, operable cases especially when it is known that the majority of the upper lobe tumors, and not all of the lower lobe tumors, would be visible early in their course. It has been estimated[15] that bronchoscopy, if performed early, will be negative in approximately 50 per cent of cases. Hence, a negative report in patients suspected of having a malignancy means only that other diagnostic measures should be performed promptly. It must be emphasized, at this point, that this procedure should be performed in cases, because of suggestive symptoms (such as persistent cough, localized expiratory wheeze, hemoptysis) even though there is no roentgenologic evidence of disease. Unfortunately, the finding of a bronchial carcinoma this early is quite rare.[14,26]

Case M. W., age 43, white male, physician, presented himself in 1943, with a history of a faint but definite wheeze, heard best—and usually only at night, for two weeks. He had had a minimal dry cough for many years. Chest examination revealed a fine expiratory wheeze confined to the left lower lobe. Roentgenographic investigation, including inspiratory and expiratory films, were negative. Bronchoscopy was advised but refused as he could not understand the justification for permitting himself to be bronchoscoped when the chest x-rays were normal. Two weeks later, in a mild coughing episode, he expectorated, for the first time, a small amount of mucoid sputum which was blood-tinged. That was sufficient to eliminate much of the doubt in his mind as to the necessity for further investigation, and bronchoscopy the following

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day revealed a small tumor in the left lower lobar bronchus, which on biopsy was proven to be a squamous cell carcinoma. This was followed by a pneumonectomy by Dr. Brian Blades. The patient is alive today and has returned to his dermatological practice.

Bronchography. In cases where a bronchial lesion is suspected but is beyond the visualization of the bronchoscopist, the use of radio-opaque solutions (lipiodol) may be used to demonstrate stenosis.[27]

Examination of Sputum for Cancer Cells. This procedure, which has been used only occasionally for many years, has assumed increasing importance by the work of Papanicolaou.[28] Since most primary carcinomas of the lung are bronchogenic, they tend to exfoliate cells into the bronchial lumen. The cytologic study of sputum for neoplastic cells is rapidly being accepted as a valuable aid in the diagnosis of cancer of the lung. However, it must be stressed that the pathologist examining the slides must be particularly trained in the recognition of these cells. The importance, also, of making and thoroughly examining several smears of each specimen cannot be over-emphasized. And, just as in the case of tuberculosis, more than one specimen should be collected for study should the original ones be negative. In general, carcinoma cells are much larger than the normal cells and may show extreme variation in size. The nucleus is very large in relation to the amount of cytoplasm and are generally hyperchromatic and show a course chromatin network. In many, there will be seen large, multiple nucleoli of irregular shape and size. Farber, *et al.*,[29] studied sputum specimens in 66 proved cases of carcinoma. Positive results were obtained in 82 per cent. In their experience, as well as that of others,[30] sputum and bronchial secretions have proved equally satisfactory. Herbut and Clerf,[31,32] however, noted superior results when specimens removed at bronchoscopy were studied. In those cases where secretion cannot be obtained from the bronchus, 2 to 5 cc. of saline solution may be introduced into the bronchus and then aspirated. One hundred and eighteen cases of lung carcinoma were studied by this method.[26] Neoplastic cells were found in approximately 90 per cent of these cases. In the same group a positive biopsy was obtained by the bronchoscope in approximately 45 per cent. Neoplastic cells were found in 43 cases in which the bronchoscopic examination was completely negative. In another series, exfoliated cancer cells in the expectorated secretions provided the only preoperative microscopic evidence of cancer in 29 of 74 cases of bronchogenic carcinoma in which surgical exploration was carried out.[30]

Pleural Fluid. Pleurisy with effusion has been found with varying frequency in different series of cases of bronchogenic carcinoma.[2] In Ochsner's collected series[17] the pleura was involved in approximately 30 per cent. The fluid may be either serous or hemorrhagic. The onset of the effusion is usually insidious and accompanied by pain and dyspenea. Effusions are more frequently observed in association with tumors situated near the pleura and tend to occur late in the disease. Of Tripoli and Holland's[9] series of 195 cases of cancer of the lung, 42 (21.5 per cent) had an associated pleural effusion, thirty-four of which were hemorrhagic. Carcinoma cells could only be found in three of the hemorrhagic cases and in only one of the straw-colored effusions. In Adam's series of 157 cases,[13] 26, or 16.5 per cent, had an associated pleural effusion. Carcinoma cells were only found in five instances. Although it is generally true that bloody pleural fluid in a patient in the cancer age group is highly suggestive of malignancy of the lung, it is not an infallible indication, because it can also be caused by infarct or an inflammatory reaction.

Aspiration Biopsy. Although this procedure has been advocated[9,10] as a diagnostic measure in suspected cancer of the lung, Ochsner,[12] Adams,[33] Overholt and Wilson[34] are of the opinion that this should never be used except in cases that are obviously inoperable and then only when the lesion is peripheral. The danger of implanting metastases in the pleura and chest wall,[12] and the possibility of hemorrhage and infection are all potential complications which cannot lightly be disregarded.

Thoracotomy. An occasional case will be encountered in which no diagnostic approach other than thoracotomy will be decisive. In a series of 200 cases of exploratory thoracotomy performed by Grow, Bradford and Mahon,[35] there was no mortality and minimal morbidity. Of 86 circumscribed parenchymal lesions whose diagnosis could not be established before operation, 20 were found to be malignant. Because of the necessity for early op-

eration in every case of malignancy, physicians, according to Overholt and Wilson,[34] should adopt an attitude towards this procedure similar to the well established abdominal exploration for unexplained abdominal masses. Ochsner[21] and Adams[33] are also in agreement that thoracotomy is justified in cases suspected strongly of having a malignancy if diagnostic procedures done cannot prove or disprove its presence. The importance of early operation is increased by the facts that in many cases an accurate determination of malignancy or benignancy cannot be made before operation, and that delay in operating in the case of those tumors that happen to be malignant often results in their becoming inoperable.

TREATMENT

The only curative treatment of bronchogenic carcinoma is surgical extirpation. The method of choice is removal of the entire lung on the affected side even though the lesion may apparently be limited to a single lobe.[11,12,36,37,38] It is only by complete excision of the entire lung that the regional lymph nodes can be adequately removed.

Irradiation is not justifiable in operable cases of bronchogenic carcinoma. However, it may be used as a palliative procedure and may be of value in hopeless cases in the alleviation of symptoms. Widman,[39] in a control group of 119 cases receiving no therapy, found that none lived as long as one year. He treated 167 cases with x-ray therapy and noted that 18 lived 12 months or longer and 5 lived two to six years. Craver,[10] Leddy[40] and King[41] likewise noted that in some of their cases treated by means of x-ray, life was prolonged, and the patients were made more comfortable.

Recently, Skinner, Carr and Denman[42] treated 17 inoperable cases of lung cancer with methyl-bis, and noted that the majority of the cases temporarily gained in weight and strength and, to varying degrees were relieved of pain. The dose given was 0.1 mg. per kilogram of body weight, given intravenously once daily for four days. They felt that the combination of methyl-bis and x-ray therapy might probably offer superior palliative therapy than the use of either of the two used alone.

CONCLUSIONS

1. Bronchogenic carcinoma is a common lesion and represents about 10 per cent of all carcinomas.
2. It is a disease predominant in the male sex and is most frequently found after the age of 40.
3. There is no characteristic clinical picture. The presence of unexplained pulmonary symptoms (cough, hemoptysis, wheezing, chest pain) persisting in a man beyond the age of 40 should make one suspect bronchial carcinoma.
4. All possible diagnostic procedures must be promptly utilized in an effort to arrive at the correct diagnosis.
5. Cytologic examination of the bronchial secretion offers much promise in the early diagnosis of bronchogenic carcinoma.
6. Clinical improvement with antibiotic therapy is not sufficient evidence to eliminate the possibility of an underlying malignancy. No case with a pulmonary lesion should be discharged from one's observation until an etiological diagnosis has been made, or complete resolution has occurred roentgenographically.

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Wainwright Building.

CLINICOPATHOLOGICAL REPORTS

From the Case Records of the Medical College of Virginia
and the
University of Virginia Hospitals

HARRY WALKER, M.D., *Editor*
WILLIAM KAY, M.D., *Associate Editor*

CASE NO.: 35

This 70 year old colored female was admitted to St. Philip Hospital with the chief complaint of abdominal pain of three weeks' duration. She stated that she had been in good health until she was suddenly taken ill three weeks prior to admission with crampy pain in the abdomen followed by intermittent vomiting and accompanied by anorexia and abdominal distention. The abdominal pain persisted for three weeks and was never localized. There was no accompanying diarrhea. The bowel movements had been scanty for the three weeks prior to admission and the last one was four days before entry into the hospital. There had been some weight loss over a period of several weeks. The stools had been tarry for about four weeks, but there had been no fresh blood. After further questioning the patient stated that she had vomited coffee ground appearing material one time during the present illness.

Past History: Nine years prior to the present illness the patient had developed exertional dyspnea. Five years ago she had an episode of congestive failure which was treated with digitalis and had been fairly well controlled since that time. She had taken no digitalis for 3 weeks prior to hospitalization. The patient had had no surgical operations. She gave a history of having indigestion for one year and said that she had had a poor appetite for several years. She habitually took laxative and there had been no recent change in her bowel habits. There had been no pregnancies and menopause had occurred uneventfully 23 years previously.

Physical Examination: Temperature 97°, pulse 112, respirations 22, blood pressure 122/62. On admission to the hospital the patient appeared to be a fairly well developed, poorly nourished, elderly, colored female showing evidence of severe dehydration and moderate abdominal distress. There was no distention of the neck veins. The chest was emphysematous. The lungs were clear except for a few rales at the left base posteriorly. The heart was enlarged with the point of maximum impulse diffuse and the left border of dullness at the anterior axillary line in the 6th intercostal space on the left. The rhythm was regular and the rate 112. There was a soft apical systolic murmur. The abdomen was markedly distended and tympanitic. There was no abdominal tenderness. No masses or organs could be palpated. There was no free fluid demonstrable. No hernia could be made out. Peristalsis was high pitched and tinkling. Rectal examination revealed a large amount of hard feces, but no stricture or tumor. Vaginal examination revealed no significant abnormalities. There was 1 plus edema of the extremities.

Laboratory Work: White blood count 10,300 with 72% polys. Hemoglobin 11 grams, NPN 49, serum chlorides 82 mEq. per liter, CO_2 combining power 27 mEq. per liter. X-rays of the abdomen revealed distention of loops of small bowel with fluid levels seen in the upright position. There was very little gas in the colon.

Course in the Hospital: Shortly after admission the patient was given cleansing enemas and a proctoscopic examination was performed, but no abnormalities noted. She was then treated with bed rest and oxygen by tent and was started on large doses of penicillin and streptomycin intramuscularly. Because of what appeared to be mild congestive failure, she was digitalized with 1.6 mgs. of Cedilanid intravenously. She was also given 500 cc. of blood intravenously and a Miller-Abbott tube was inserted for intestinal decompression. On the day after admission an electrocardiogram showed auricular fibrillation. She was given parenteral fluids by hypodermoclysis with hyaluronidase and the Miller-Abbott tube was removed and reinserted. On the third hospital day there appeared to be no appreciable decompression of the bowel after 24 hours of Wangensteen suction applied to the Miller-Abbott tube, and so operation was undertaken. Under regional novacaine block, a right rectus abdominal

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incision was made and the point of obstruction was found in the distal ileum which was thought to be cicatricial in nature. Because of the patient's poor condition a Stamm type enterostomy was performed just proximal to the point of obstruction and the enterostomy tube was brought out through a stab wound in the right lower quadrant. Post-operatively the patient seemed to do somewhat better and began gradually to deflate as the enterostomy tube drained. However, she ran a febrile course after operation and penicillin and streptomycin were continued. On the 5th post-operative day subcutaneous emphysema was noted extending from the head to the mid-abdomen on the right. She developed generalized edema and there was a progressive decline in the serum chloride level to a low value of 77 mEq. per liter on the 8th post-operative day. Intravenous infusions of 5% sodium chloride and of concentrated albumin were given and it was thought that the massive edema was due to salt depletion and hypoproteinemia. Potassium chloride was administered by mouth. The septic temperature curve persisted and she was given aureomycin with a temporary decline in the fever. On the 10th post-operative day feces began draining around the enterostomy tube. The subcutaneous emphysema persisted and x-rays were said to show a small amount of pneumothorax on the right. On the 10th post-operative day the temperature rose to 107° and the patient expired on the 11th post-operative day.

DISCUSSION BY DR. GUY W. HORSLEY*

In these cases I prefer to read the history that has been given to us, make comments as we go along, and then at the end try to arrive at some rational diagnosis.

This patient, 70 years old, was admitted to St. Philip Hospital with the chief complaint of abdominal pain of three weeks' duration. She stated that she had been in good health until she was suddenly taken ill, three weeks prior to admission, with cramping pains in her abdomen, followed by intermittent vomiting, and accompanied by anorexia and abdominal distention. The abdominal pain persisted for three weeks and was never localized. There was no accompanying diarrhea. The bowel movements had been scanty for three weeks prior to admission, and the last one was four days prior to entry into the hospital. There had been some weight loss over a period of several weeks. The stools had been tarry for about four weeks. The patient stated there had been no fresh blood in her stools, and that on one occasion she had vomited coffee ground appearing material.

From the history it seems as if she had some gastro-intestinal lesion—vomiting coffee ground appearing material and passing tarry stools would indicate she had gastro-intestinal bleeding, possibly from the stomach or duodenum.

The Past History: Nine years prior to the present illness the patient had developed exertional dyspnea. Five years ago she had an episode of congestive failure which was treated with digitalis and had been fairly well controlled since that time. She had taken no digitalis for three weeks prior to hospitalization. The patient had had no surgical operations. She gave a history of having had indigestion for one year and said that she had had a poor appetite for several years. She habitually took laxatives and there had been no recent change in her bowel habits. There had been no pregnancies and menopause had occurred uneventfully 23 years previously.

The Physical Examination: Temperature 97° pulse 112, respirations 22, blood pressure 122/62. On admission to the hospital the patient appeared to be a fairly well developed, elderly, colored woman, showing evidence of severe dehydration and moderate abdominal distress. There was no distention of the neck veins. The chest was emphysematous. The lungs were clear except for a few rales at the left base posteriorly. The heart was enlarged with the point of maximum impulse diffuse and the left border of dullness at the anterior axillary line in the 6th intercostal space on the left. The rhythm was regular and the rate 112. There was a soft apical systolic murmur. The abdomen was distended and tympanitic. There was no abdominal tenderness. No masses or organs could be palpated. There was no free fluid demonstrable. No hernia could be made out. Peristalsis was high pitched and tinkling. Rectal examination revealed a large amount of hard feces but no stricture or tumor. On vaginal examination there were no significant abnormalities noted. There was 1 plus edema of the lower extremities.

From the history and physical findings, it is ob-

*Associate Professor of Surgery, Medical College of Virginia, Richmond.

vious that the patient has some type of intestinal obstruction, the cause of which seems to be of a chronic nature. She has had no abdominal operations, and we very seldom see acute intestinal obstruction which develops without a previous abdominal operation, unless there is some type of polypoid tumor, or a volvulus or intussusception. The patient evidently has not had an intussusception or volvulus as this has been a prolonged chronic affair.

The Laboratory Work: The white count was 10,300 with 72% polys., hemoglobin 11 grams, NPN 49, serum chlorides 82 mEq. per liter, CO_2 combining power 27. X-rays revealed distention of loops of small bowel with fluid levels seen in the upright position. There was very little gas in the colon.

This indicates, so far, that the patient has intestinal obstruction and from the X-ray apparently the obstruction is in the small bowel. We would have thought that in a patient of this age with a chronic obstruction the cause would be from a carcinoma of the large bowel. From the X-ray shown here, the obstruction is in the small bowel and not the large bowel.

Course in the Hospital: Shortly after admission the patient was given a cleansing enema and a proctoscopic examination was performed, but no abnormalities were noted. She was then treated with bed rest and oxygen tent, and was started on large doses of penicillin and streptomycin intramuscularly. Because of what appeared to be a mild congestive failure, she was digitalized. She was also given 500 c.c. of blood intravenously, and a Miller-Abbott tube was inserted for intestinal decompression. On the day after admission an electrocardiogram showed auricular fibrillation. She was given parenteral fluids by hypodermoclysis with hyaluronidase and the Miller-Abbott tube was removed and reinserted. On the third hospital day there appeared to be no appreciable decompression of the bowel after 24 hours of Wangensteen suction applied to the Miller-Abbott tube, and so an operation was undertaken. Under regional novocain block a right rectus abdominal incision was made and the point of obstruction was found in the distal ileum, which was thought to be cicatricial in nature. Because of the patient's poor condition a Stamm type enterostomy was performed just proximal to the point of obstruction and the enterostomy tube was brought out through a stab wound in the lower quadrant.

It is rather hard to see how cicatrix in the terminal ileum could cause bleeding, vomiting of coffee ground material or passing of old black blood or tarry stools, unless there were some other associated gastro-intestinal lesion with this condition. Cicatricial contraction of the terminal ileum is practically always inflammatory, possibly tuberculous, or, occasionally typhoid, or it may be one of the healed nonspecific ulcers in that area. Apparently, as it is described here, the cicatricial contraction of the distal ileum did not develop from nor was it caused by intraperitoneal adhesions.

Post-operatively, the patient seemed to do somewhat better and began gradually to deflate as the enterostomy tube drained. However, she ran a febrile course after operation, and penicillin and streptomycin were continued. On the 5th post-operative day subcutaneous emphysema was noted, extending from the head to the mid-abdomen on the right, a rather unusual complication.

She developed generalized edema and there was a progressive decline in the serum chloride level to a low value of 77 mEq. per liter on the 8th post-operative day. Intravenous infusions of 5% sodium chloride and of concentrated albumin were given, and it was thought that the massive edema was due to salt depletion and hypoproteinemia. The use of hyaluronidase with the hypodermoclyses was thought to have caused increase in the edema because of protein deficit and increased venous pressure. Potassium chloride was administered by mouth. The septic temperature curve persisted and she was given aureomycin with a temporary decline in the fever. On the 10th post-operative day feces began draining around the enterostomy tube. The subcutaneous emphysema persisted and X-rays were said to show a small amount of pneumothorax on the right side. On the 10th post-operative day the patient's temperature rose to 107°, and the patient expired on the 11th post-operative day.

It is most interesting to know what caused the emphysema. It could have been caused by one of several things: We could consider that this patient had obstruction to the terminal ileum from a tuberculous ulcer, and she may have developed a spontaneous pneumothorax during anesthesia, with some emphysema in the mediastinum which did not show

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up until later on. That is one of the possibilities, but from her history apparently she has had some upper gastro-intestinal symptoms other than the lesion described in her terminal ileum. She may have had a carcinoma of either the lower esophagus or the cardiac end of the stomach; if so, there may have been an injury or rupture of the cardiac end of the stomach or esophagus, with resultant infection or pneumothorax and the subcutaneous emphysema.

Another possibility is one that I have seen in one or two other cases, namely gas bacillus infection. We are not told what the patient's blood count was after operation, nor are we told one or two other things we would be interested in knowing. I have seen gas bacillus infection develop around an enterostomy tube where there had been some slight spilling, and that could cause the emphysema, the subcutaneous emphysema which extended, as recorded, on the right side of the abdomen from the mid-abdomen to the head. This origin is approximately where the enterostomy tube passed through the abdominal wall. She certainly could have had a septic process develop from a gas-forming type of organism, as she ran a very septic fever. However, in this case with the history and other reported findings, I would lean to the fact that the patient had some type of lesion in the upper gastro-intestinal tract, which either ruptured spontaneously, or possibly was injured when inserting one of the tubes, which caused infection, her febrile course, and the emphysema.

The other two possibilities which I mentioned just now must also be seriously considered.

What caused the obstruction? It may have been that the patient had an old partial intussusception which produced the scar, or she could have had the obstruction from metastasis, either from the pelvic organs or gastro-intestinal tract. Adhesions from old pelvic inflammatory disease which was entirely separate from her other gastro-intestinal conditions could have produced the obstruction.

Hospital Diagnosis: (1) Intestinal obstruction, acute, secondary to carcinoma of the cecum or stomach. (2) Arteriosclerotic heart disease.

Dr. Horsley's Diagnosis: Acute intestinal obstruction (1) secondary to metastasis either from the pelvic organs or gastro-intestinal tract or (2) adhesions from old pelvic inflammatory disease.

PATHOLOGICAL REPORT: DR. C. NEWTON VAN HORN*

At necropsy the body was that of a poorly nourished, elderly negro woman with subcutaneous emphysema in the anterior neck region, the anterior aspect of the thorax extending into the right axilla, the right anterior abdominal wall and the right suprapubic region. A fairly recent 15cm. surgical incision was present in the right para median line of the right lower quadrant, sutures intact and showing evidence of proper healing. In the right lower quadrant there was an open stab-type wound draining fecal contents. On incision of the skin of the abdomen in the midline, a fecal sinus was entered just above the symphysis on the right which communicated freely with the stab wound in the right lower quadrant. On tracing the sinus further it was found to extend laterally and posteriorly to the lateral margin of the flank, superiorly to the right rectus margin. This area showed extensive necrosis of the subcutaneous tissue with a fecal odor. On tracing out the stab-type wound it was found to enter into the distal ileum 20cm. from the ileo-cecal valve. The margins of the ileum at the ileostomy orifice showed necrosis and were attached to the anterior peritoneal wall by fibrinous adhesions. On opening the abdomen a generalized fibrinopurulent peritonitis was found and the terminal ileum was attached to the anterior abdominal wall. Approximately 3cm. distal to the ileostomy opening there was a constriction of the ileum which upon opening the intestine was found to be due to a fungating growth that infiltrated the wall and protruded into the lumen. It measured approximately 4x5cm. Microscopic examination of the tumor revealed an irregular bizarre glandular pattern. The cells were closely packed, showed hyperchromatic nuclei and a few mitotic figures. In the base there was invasion of the muscle wall by tumor cells associated with marked fibrous tissue proliferation. Sections from the margin of the ileostomy reveal extensive necrosis of the wall.

Both kidneys were enlarged weighing 340gms. and 300gms. The gross and microscopic pictures were those of acute (toxic) nephrosis and vascular scars. A solitary cyst (6cm.) was noted in the upper pole of the right kidney. Other findings of importance were generalized arteriosclerosis, prominent

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coronary sclerosis, myocardial fibrosis and cardiac hypertrophy (520gms.). The latter involved both sides of the heart. There was a prominent patent foramen ovale. The lungs showed moderate hypertrophic pulmonary emphysema. Also noted were multiple intraabdominal and pelvic adhesions; chronic cholecystitis with cholecystolithiasis and mild biliary cirrhosis.

PATHOLOGICAL DIAGNOSIS:

1. Post-operative status: Recent ileostomy for obstruction of ileum.
2. Subcutaneous fecal sinus communicating with ileostomy opening, and subcutaneous emphysema.
3. Generalized fibrinopurulent peritonitis.
4. Adeno-carcinoma of small intestine (ileum).
5. Multiple fibrous adhesions intraabdominal and pelvic.
6. Chronic cholecystitis with cholecystolithiasis.
7. Mild biliary cirrhosis.
8. Acute nephrosis of kidney.
9. Vascular scars of kidney.
10. Solitary cyst 6cm., right kidney upper pole.
11. Arteriosclerotic heart disease: Coronary sclerosis, myocardial hypertrophy and fibrosis.
12. Patent foramen ovale.
13. Emphysema of lungs.

Wide Scale Study of Incomes of Physicians Is Under Way.

The first full scale survey of physicians' incomes in nine years is under way. The study is being made jointly by the Bureau of Medical Economic Research of the American Medical Association and the Office of Business Economics of the United States Department of Commerce. The survey will cover 125,000 doctors, or about 62.5 per cent of the nation's total of 201,278.

Selection of the names will be from the punch card files of the Bureau of Medical Economic Research by a formula which eliminates any partiality. To every other name will be sent a questionnaire requesting income information for 1949.

Of the other approximately 100,000 physicians every fourth name will be chosen. To 10,000 of these will go the same type of questionnaire. The other 15,000 will receive a long form sheet, requesting information on income for the years 1945 through 1949. All are to be returned unsigned in franked envelopes.

Survey of Physicians' Incomes.

The Bureau of Medical Economic Research of the American Medical Association and the Office of Business Economics of the U. S. Department of Commerce are jointly conducting a survey of physicians' incomes—the first full-scale survey since 1941. There is evidence that the national averages in some surveys have been too high because physicians who do not have bookkeepers to fill out the questionnaires do not reply in sufficient numbers. Accordingly, the Bureau emphasizes the importance of all doctors, especially those with a relatively small practice, filling out the questionnaires. Every physician can be assured that the survey has no relation whatever to the operations of the U.S. Bureau of Internal Revenue.

The A. M. A. states that physicians will be doing the medical profession a service by filling out the forms and returning them as soon as possible.

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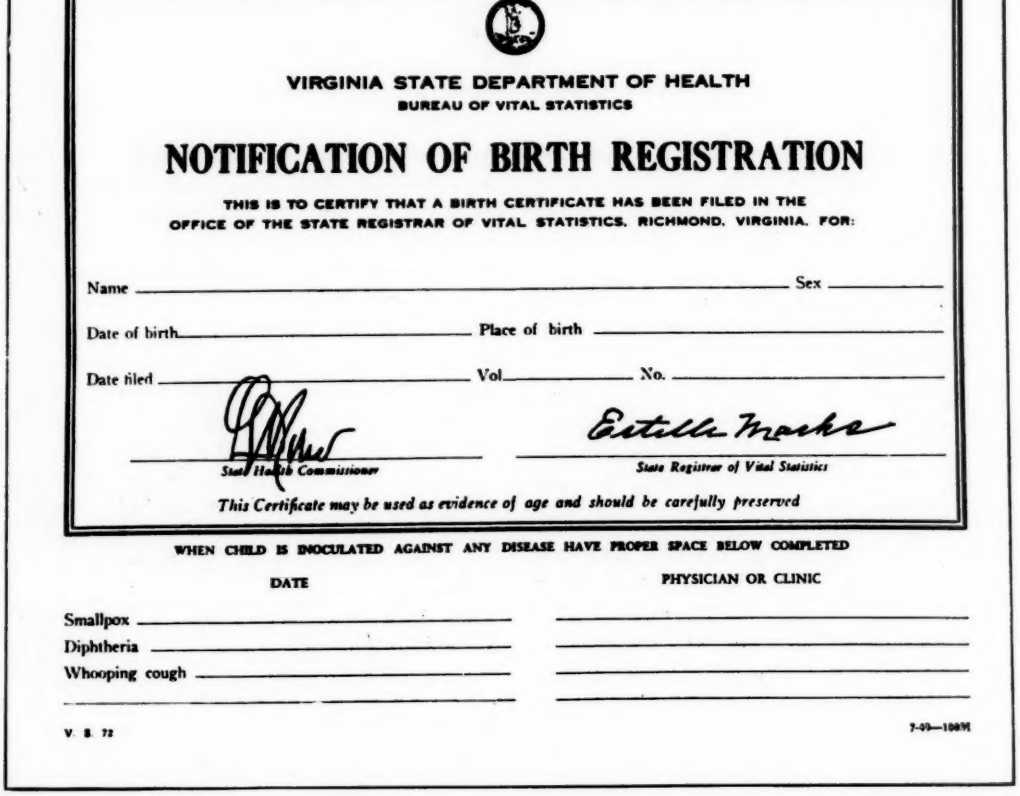
THE DOCTOR'S CHANCE TO STIMULATE EARLY IMMUNIZATION

L. J. ROPER, M.D.,
State Health Commissioner of Virginia.

The importance of early immunization is being brought to the attention of parents by the recently adopted form for Notification of Birth Registration shown on this page.

It will be noted that in addition to serving as a record of birth registration—now generally required upon entrance to school—space is provided for recording the types and dates of immunizations. It is here that the private physician has his chance. Prompt reporting of the birth by the physician will result in early receipt by the parent of Notification of Registration. This in turn should remind the parent of the importance of immunization and should result in early contact with the family doctor.

This form fills the long felt need of a continuing record that accompanies the child to the physician's office, to preschool and school examinations and will aid the physician in determining what immunizations or booster doses are indicated. No longer will he have to question what immunizations the child may have had before coming to his attention.



VIRGINIA STATE DEPARTMENT OF HEALTH
BUREAU OF VITAL STATISTICS

NOTIFICATION OF BIRTH REGISTRATION

THIS IS TO CERTIFY THAT A BIRTH CERTIFICATE HAS BEEN FILED IN THE OFFICE OF THE STATE REGISTRAR OF VITAL STATISTICS, RICHMOND, VIRGINIA, FOR:

Name _____ Sex _____

Date of birth _____ Place of birth _____

Date filed _____ Vol _____ No. _____

State Health Commissioner

Estelle Marks
State Registrar of Vital Statistics

This Certificate may be used as evidence of age and should be carefully preserved

WHEN CHILD IS INOCULATED AGAINST ANY DISEASE HAVE PROPER SPACE BELOW COMPLETED

	DATE	PHYSICIAN OR CLINIC
Smallpox		
Diphtheria		
Whooping cough		

V. S. 72

7-09—100M

MENTAL HEALTH

JOSEPH E. BARRETT, M.D.,
Commissioner, Department of Mental Hygiene and Hospitals.

The Problem of the Criminal Insane in Virginia.

Human behavior is of interest to everyone since it concerns the welfare of society and of the individual. Laws have been enacted to protect the welfare, comforts and rights of the individual and when these are transgressed a suitable punishment is prescribed, varying from a fine for overparking to the death sentence for murder. If a person is mentally ill to the degree of legal incompetence the Code of Virginia (and those generally for the country) provides that he may not be punished. The term "insane" represents legal and not psychiatric terminology. The following comments in reference to the handling of this problem, that of the criminal insane in Virginia, may be of interest.

The Virginia Code provides that a person charged with a felony may be committed by a Court of Record to the department for the criminal insane at Southwestern State Hospital (if white) or at the Central State Hospital (if colored). He is so committed if the Court has reason to feel that there may be mental illness or defect. The Superintendent of the hospital is directed to make necessary observations and to submit a report to the Court as to the mental condition or as to whether the person is sane. If found to be sane, he is returned to the Court for disposition. If found to be insane and recovery takes place, this is reported and he is returned to the Court. There is an additional precaution that should the crime in question be one punishable by death the patient must be passed upon as recovered by two other State Hospital Superintendents.

What types of individual are sent for this study? At Southwestern State Hospital we now receive over eighty new patients a year committed for observation. A five year survey showed that about 22% were mentally defective, 18% were psychopathic personalities, 13.5% were alcoholic and 8.5% had organic psychoses. Crimes by those found to be psychotic were chiefly murder, robbery, crimes against nature and arson. The crimes are classified as being against property, against the person and against sex. Two-thirds of the psychopaths committed crimes against property, indicating egocentricity and a tendency to yield to immediate pleasure. A large number of these were not considered legally insane.

Following admission these patients are intensively studied. Anamneses are obtained from various sources and laboratory, psychological and psychiatric investigations are made. At Hospital Staff Meeting the official diagnosis is made. A majority are reported back to the Court as not having been insane or psychotic since admission. Those who manifest a mental illness receive treatment. In brief, treatment consists of psychotherapy by the physician through treatment interviews, electro or insulin shock, narcotherapy, recreation and occupational therapy. Here, as throughout the remainder of the hospital, funds are needed to provide personnel, equipment and supplies necessary to carry out a thorough rehabilitation and treatment program.

These criminally insane patients are all merely individuals who have become mentally ill and who usually have, as one of their symptoms, committed some anti-social act. Various factors such as aggressiveness, instability, aberrant sexual tendencies, mental subnormality, delusions, paranoid developments, etc., make them as a group potentially more dangerous. Of necessity they must be cared for in a maximum security building manned by adequate and capable personnel. Unfortunately, necessary careful supervision makes it unwise to utilize occupational or industrial therapy as much as would be desirable.

The above comments may invite questions concerning related subjects. There is a gradual convergence of the legal profession and psychiatrists in their attitude towards crime. Joint recommendations by the Committees of the American Psychiatric Association and American Bar Association have been directed towards introducing reforms in our legal procedures in relation to mental disorders. They have adopted the following very progressive and sound recommendations:

(1) Availability of a psychiatric service to assist the Courts in the disposition of offenders.

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(2) That no felon be sentenced before there was filed as a part of the record a psychiatric report.

(3) That every penal or correctional institution have a psychiatric service.

(4) That there should be a psychiatric report on every prisoner convicted of a felony before he is released.

(5) A good administrative transfer and parole system in every state with psychiatric reports.

Health Inventory at 40 Helps Prevent Aging.

Forty is the time to take a health inventory. At this age, the insidious, progressive disorders so significant in later years generally first become manifest according to Dr. Edward J. Stieglitz of Washington, D. C. (April 8, 1950, J.A.M.A.)

Workers in medicine's newest field, geriatrics, are learning more about the limitations and needs of aging men and women. "Geriatric medicine, to be fully effective, must be largely preventive medicine."

The actual beginnings of common disorders such as hardening of the arteries, high blood pressure and degenerative arthritis occur far earlier than do their symptoms. "The detrimental effects of obesity in the later years of life can hardly be overemphasized."

Good diet is a powerful tool for keeping healthy and vigorous in later years, according to the author. Elderly people are more likely to suffer from lack of protein than from any other deficiency, and lack of protein is a significant factor in development of tissue wastage and anemia. Loss of calcium and phosphorus apparently is a factor in the characteristic wasting away of bone seen in senile persons.

"Unfortunately, the majority of older persons dislike or resent the prescription of milk. Milk is not only a valuable source of protein but also a major source of calcium. Moderate anemias are almost the rule in elderly persons. Milk is ordinarily deficient in iron. A great majority of elderly persons require supplemental administration of iron salts.

"Minor degrees of vitamin deficiency can be assumed to be the rule. Liberal additions of the vitamin B group and vitamin C to the diet of older persons can make for great improvement in general vitality and vigor. Vitamin supplementation through special preparations may be necessary in addition to a well planned adequate diet."

New Books.

The following are recently acquired books at the Library of the Medical College of Virginia, and are available to our readers under usual library rules:

Aggeller—Hemorrhagic disorder.
Assoc. research in nervous and mental diseases.—Epilepsy.
Carter and Thompson—Biochemistry in relation to medicine.
Engle, ed.—Menstruation and its disorders.
Fulton—Physiology of the nervous system. 3rd ed.
Gold—Quinidine in disorders of the heart.
Goepp and Flippin—Medical state board questions and answers. 8th ed.
Lyons and Woodall—Atlas of peripheral nerve injuries.
Rees, ed.—Modern practice in psychological medicine.
Sachs—Diagnosis and therapy of brain tumors and care of the neurosurgical patient.
Sheldon—Varieties of delinquent youth.
Stern—Principles of human genetics.
Umbriet, Burrus and Stauffer—Manumetric techniques and tissue metabolism.
Weisz—Principles of psychodynamics.
Williams and Miles—Infection and sepsis in industrial wounds of the hand.

PUBLIC HEALTH

L. J. ROPER, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Disease Control of the State Department of Health for March 1950 as compared with the same month in 1949, and for the period of January through March 1950 as compared with the same period in 1949, is as follows:

	Mar. 1950	Mar. 1949	Jan.-Mar. 1950	Jan.-Mar. 1949
Typhoid and paratyphoid	9	6	20	13
Diarrhea and dysentery	166	187	952	884
Measles	233	4,034	513	9,969
Scarlet fever	89	73	366	239
Diphtheria	23	9	68	42
Poliomyelitis	1	1	10	8
Meningitis	23	10	46	29
Brucellosis	7	5	13	14
Rocky Mountain spotted fever	0	0	0	0
Tularemia	2	2	16	7

VIRGINIA AND THE NATION

The Annual Summary for 1948 and 1949 for the United States, by State, published by the National Office of Vital Statistics, indicates how closely vital statistics for Virginia follow the pattern for the United States. It is interesting to note that, despite local differences in racial origin of population, economic status and extent of health programs, there is a basic biological similarity. This is indicated by the following table, which shows birth and death rates, infant mortality rates, and marriage license rates in Virginia and the United States as a whole.

	Birth Rate* Per 1,000 pop.		Death Rate* Per 1,000 pop.		Infant Mortality Rate* Per 1,000 pop.		Marriage License Rate Per 1,000 pop.	
	1948	1949	1948	1949	1948	1949	1948	1949
United States	24.3	24.1	9.9	9.7	31.6	30.9	12.5	10.8
Virginia	26.1	25.6	9.5	9.4	38.9	38.7	12.3	10.7

*Exclusive of stillbirths.

As indicated by the above table, the only rates which are significantly dissimilar are those for infant mortality. The reason for this is apparent when the Virginia rate is broken down by color. In 1948 the Infant Mortality Rate for White was 34.2 and for Colored 51.6.

"Infant mortality is the most sensitive index we possess of social welfare. If babies were well born and well cared for, then mortality would be negligible." (Sir Arthur Newsholme). Effort in this field in Virginia needs to be continued and intensified, but it is encouraging to review progress made in the past ten years as shown by the uniformity of percentage decrease in Infant Mortality Rates.

INFANT MORTALITY IN VIRGINIA

	1938	1948	% Decrease
TOTAL	66.1	38.9	41.1
White	56.7	34.2	39.7
Colored	89.9	51.6	42.6

Aureomycin Yields Good Results Against Parasitic Infestation.

Chronic infestation by the parasite that causes amebic dysentery is relieved by aureomycin, the new antibiotic drug, according to an article by Dr. John Davis Hughes of the University of Tennessee College of Medicine, Memphis. (J.A.M.A., April 8, 1950.)

Twenty-seven of a group of 38 patients treated with aureomycin were cured. Practically all others of the group had great relief from symptoms of the disease.

All 38 patients had been treated repeatedly for the disease with other drugs which failed to achieve satisfactory results.

Numerous persons in this country are infested with the parasite. Although some carriers have fatigue, nervousness and recurring diarrhea, others show no symptoms. However, carriers of the parasite are a considerable source of danger to other persons because of possible spread of amebic dysentery.

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MEDICAL SOCIETY OF VIRGINIA

PUBLIC RELATIONS

HENRY S. JOHNSON, *Director*

Medical Societies Representation in the State Legislature

The Medical Society of Virginia is represented in the State Legislature by two State Senators. It does not have a member in the House of Delegates.

Dr. W. C. Caudill of the Nineteenth Senatorial District is President of the Medical Society of Virginia.

Dr. James D. Hagood represents the Tenth Senatorial District and is Chairman of the Legislative Committee of the Medical Society of Virginia.

It is not easy for one who was not on the scene to realize how indebted the membership of the Society should feel to the time, interest, patience and effort of these two men during the 1950 session. The record speaks for them.

The work of the Legislative Committee including Dr. J. D. Hagood, *Chairman,* Clover; Dr. J. Frank Folk, Warrenton; Dr. Charles H. Henderson, Norton; Dr. Dean B. Cole, Richmond; Dr. Carrington Williams, Richmond; Dr. F. C. Pratt, Fredericksburg; Dr. J. Edwin Wood, Charlottesville; Dr. Frank A. Farmer, Roanoke; and Dr. George W. Schenck, Norfolk was well done. This was born of inconvenience, sacrifice and painstaking pursuit of the best interest of matters of concern to the membership. Congratulations and expressions of appreciation seem in order.

Members of the District Council Confer

Plans have been completed for a conference of the members of the District Council in 1950—the last one concluding on June 12.

Presidents, Secretaries, and Chairmen of Public Relations Committees of local medical societies are being invited to these with the view that the affairs of the Society may, in advance, be discussed with officers representing each local medical society in the State.

The presentation and discussion of these conferences are recorded and plans are under way to furnish each councilor, each member of the District Council, Presidents, Secretaries and Chairmen of Public Relations Committees of local medical societies with that which is construed to be the most important items of discussion.

The Washington Scene

Indications from Washington are that action on legislation of interest to the medical profession will not be decided in the immediate future. It seems that the bills are being carried through extensive hearings in the various committees with witnesses being heard in some instances.

The Federal Aid to Medical Education bills (H.R.5940 and S.1453) are still in the House Subcommittee where work is being continued on the details of amendments.

Hearings on H.R.6000, the Administration's version of the liberalization and extension of the Social Security Law, have been going on for some time in the Senate Finance Committee. Representatives from a wide range of business and industry have offered opposition before the Committee which seems to be affecting the status of the bill.

The implications of the so-called fringe bills (the back door approach to socialized legislation) are important to the medical profession. These seem to include the furtherance of the Administration's proposal of government medicine. The numbers of three of these are given above.

Another one is H.R.5182 which is "to consolidate certain hospital, medical and public health functions of the government in a United Medical Administration".

Word from the Washington office of the A.M.A. indicates that the Congressional situation is being observed closely. This should mean "stand by is the word".

The medical profession should not feel too badly over the way its interests have been treated in the 1950 session so far. It should be prepared to endorse or oppose, unitedly, at the proper time.

Dues

A discussion of the manner of the collection of dues of the State Society and of the AMA is always in order.

In this connection the President of the Medical

Society of Virginia, Dr. W. C. Caudill, recently appointed a committee on the subject "dues" to study the whole matter in Virginia and other states. This committee will no doubt have a report for the Council at its next meeting and the findings of the committee should be available to Virginia's representation in the House of Delegates of the AMA.

Outstanding Speaker for the 8th District Conference

Mr. Leonard E. Read, President of the Foundation For Economic Education, is scheduled as the guest speaker at the Conference for members of District Council at 8:00 P.M., May 5th in Arlington.

The Foundation is probably one of the foremost organizations of its kind in America today in the struggle to preserve the individual rights of the people. It is a non-profit and non-political educational institution which is supported purely through voluntary contributions and the sale of publications.

Mr. Read is generally recognized as one of the more outstanding speakers on this subject. In referring to the prominence and the good fortune of getting him to Virginia, suffice it to say, that he was the main speaker of the last annual national medical public relations conference.

The meeting is open to any member of the society and any lay guests the membership wishes to invite.

Anyone planning to be there should so advise Dr. John B. Leary, 3107 Columbia Pike, Arlington, Virginia.

Council Meets

Many committees and individual members of the Society frequently inquire of the next meeting of the Council.

The next meeting is tentatively scheduled at 3 P.M. at the Hotel Roanoke, Roanoke, Virginia, Thursday, June 15.

A.M.A. Dues

The answer to most questions arising over A.M.A. dues are perhaps found in the April 1, 1950 issue of the A.M.A. Journal, page 995.

This is well done in the form of questions and answers for the convenience of the membership.

Bibliotheca Obstetrica

PRISCIAN, THEODORE, 4TH CENTURY.

Harmonia Gynaeciorum of Moschion, Theod. Priscianus and Cleopatra. This may be found in both the collection of Caspar Wolf and that of Israel Spach.

Theodorus Priscianus, also called Octavius Horatianus, was the pupil of Vindicianus, the physician of the Emperor Valentinianus who reigned from 364 to 375. Sir Clifford Allbutt makes several references to him in *Greek Medicine in Rome*. He speaks of him as an archiater of Gratian and in another place as a mediocre follower of Galen.

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EDITORIAL

Ignaz Phillipp Semmelweis (1818-1865)

PUERPERAL fever ranked high as a cause of death until the end of the 19th Century. The problem was of even greater magnitude than the mere numbers would indicate, for by its very nature the incidence of the disease was confined to those in their prime. Not so with most other deaths, for most of those occur among people who are already liabilities to society. Death of a new mother not only removes a useful member of society but all too frequently breaks up a home. For that reason a maternal death is a financial and social catastrophy as well as a medical one. In spite of this, nothing was done about it until the end of the first half of the 19th Century.

In 1843 Oliver Wendell Holmes read a paper "On the Contagiousness of Puerperal Fever" before a small medical club in Boston. It was published in the first volume of the *New England Quarterly Journal of Medicine and Surgery,* a journal with a limited circulation that went out of existence within a year. The article is what we would today call an epidemiological study and is a masterpiece. Nevertheless, what notice it attracted, was that of ridicule by professors of obstetrics, especially the two outstanding professors in Philadelphia. In 1855, Holmes reprinted the essay with an introduction in which he replied to his critics in "The Professor-at-the-Breakfast-Table's" best manner. Holmes was at this time Parkman Professor of Anatomy and Physiology at Harvard and a famous author. Nevertheless, his essay had no practical results. Even his own school was unimpressed, for it was not until 1883 that the Boston Lying-In Hospital took any steps to prevent the disease, and then, at the instigation of an ex-resident who had returned from Europe where he had been impressed by Briesky's work at Prague.

In the meantime, Semmelweis was studying the problem in Vienna, clinically and pathologically as well as epidemiologically. The University of Vienna had unwittingly set up a well controlled experiment. The obstetrical department of the Allgemeines Krankenhaus had two divisions, one for the instruction of doctors and the other for the instruction of midwives. The patients were assigned alternately to division 1 and division 2 on admission. There was no selection of cases. There was no difference in the care of the patients in the two divisions, except that those in division 1 were examined by students, often upon coming from the autopsy rooms without as much as washing their hands. The midwives, of course, did no autopsies. The mortality in division 1 was notoriously high, three or four times that of division 2. All that was needed was someone to interpret properly these results. Semmelweis, as assistant, was in charge of division 1 from July 1, 1846 to October 20, 1846, and again from March 20, 1847 until March 20, 1849. He noticed the similarity at autopsy of persons dying of pyemia and those dying of puerperal fever. He predicated that the students carried some morbid matter from the cadaver to the patient and ordered that they wash their hands in calcium chloride solution before making vaginal examinations. The mortality dropped from 9.92 per cent to about two per cent.

Semmelweis reported his observations before the Medical Society of Vienna. His theory had no better reception than the essays of Oliver Wendell Holmes in this country. Semmelweis was naturally neurotic and unstable and this was too much for his morbid sensitive nature. He returned to his native Hungary. Later he was appointed Professor of Theoretical and Practical Midwifery in the University of Pest, where in 1858 he published in the Hungarian language his first book on the etiology of child bed fever. In 1861, he published his great work, *Die Aetiology, der Bergriff und die*

Prophylaxis des Kindbettfiebers. He also carried on controversies by means of open letters with most of the teachers of obstetrics in Europe. In 1865, he was confined in an insane asylum and in a short while he died from an infected wound which he received while performing an autopsy. His work has recently been translated into English by Dr. Frank P. Murphy. His style is wordy and repetitious. It has been said that if Semmelweis had spent more time in stating clearly his views and less in argument, his book would be twice as good and half as long.

Much has been written about the man, although his works have been seldom read. Many have described him as one of medicine's martyrs. A minority maintain that his works show that his persecution complex was a part of his very nature and was a delusion, for the most part. Others maintain that he discovered no new facts about the etiology and prophylaxis of puerperal fever. Even the cleansing of the accoucheur's hands with chlorine solution had been advocated previously by Watson. Be that as it may, Semmelweis undoubtedly played an important part in the universal acceptance of asepsis in the treatment of parturition and, in that way, saved the lives of innumerable mothers. As so frequently happens, his worth was recognized after his death and a beautiful statue was erected to his memory in Budapest.

This is the 12th of a series of "Doctors for whom the public should be thankful".

Life Is One Grand Steeplechase

IN hunting country they have a form of amusement called a steeplechase, which is nothing more than a cross-country race over fences, hedges, ditches, creeks, etc., to a distnat object such as a church steeple. Life is like that, and success in life depends, in the first place, on the goal we choose, in the second place on whether or not we reach the goal.

We all start equally helpless and dependent and are confronted, almost before we get our breath, with hazards and tests as stiff and difficult as the hurdles and water jumps of Aintree at Liverpool. As we pass along, to the physical hazards are added mental and moral hazards. Smooth broad roads that lead to destruction branch off from the straight and narrow path. To either side are green pastures with purling brooks and flowers belonging to the Lotus and the Poppy families. Along the way, where the going is particularly difficult, there is a vast area of "social security". It is surrounded by a Ha-Ha wall that is scarcely noticeable from the outside. However, from the inside it is a formidable barrier and permits of no escape. The area within the frame work of this Ha-Ha barrier is flat and uninteresting. The animals therein are all regimented. They eat, sleep and propagate, but nothing more exciting than the dinner bell, three times a day, ever happens there. When one tires of the green pastures beside the still waters, one can take up his journey towards success, but not so with the area of social security. The Ha-Ha wall effectively prevents any escape.

The hazards and barriers are Nature's way of developing the race, and they make life worth living. It is true they eliminate many who are unfit, but they stimulate effort and they develop character. The physiology of the body politic is much like the physiology of the individual. What would happen to the individual if the protective effect of pain could be entirely eliminated. We have a ready made example in the maimed,

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deformed leper who has the anesthetic form of the disease. The beneficent effect of effort and exercise for the individual is too well known to need any elaboration.

The hazards of Nature begin even before we are born. By a complicated chain of hormonal reactions, Nature selects a perfect egg out of a possible twenty or thirty thousand. She exposes this egg to a horde of forty to one hundred and twenty millions spermatozoa. Presumbly the best cell wins and the ovum becomes fertilized as it proceeds down the Fallopian tube. Immediately it is subjected to tests of invasiveness and of ability to obtain nourishment from its surroundings. Many fail at this stage and are never heard of. Even the mothers do not know that anything has happened. Rock and Hertig have shown that a big percentage of the ova at this early stage are defective. If the ovum succeeds in making a nest for itself in the succulent endometrium, its next great test is the formation of a placenta that is hormonally effective. Many fail at this stage which accounts for the frequency of abortion at about the third month. As the fetus grows, it puts more and more a burden on its host. Premature labor is one of the great problems of obstetrics and prematurity is one of the ten leading causes of death. Formerly syphilis was a common cause of premature labor and fetal death. This has practically been eliminated, but other causes, such as placenta previa, ablatio placentae, toxemia and little understood biological lesions remain.

Finally, after approximately 267 days the tested out mature fetus is ready for the great day when he is to make his bow to the world. Can he make it? Some two to three per cent fail to make this twelve to twenty-four hour test when he is subjected to tremendous stress and strain. Even if he comes out alive, he may be injured. Birth trauma is all too frequently met with. A minor form of this is a mashed nasal septum as the nose gets squeezed by a tense perineum. The nose surgeons find deviated nasal septa much more frequently in the first born. Modern obstetrics with anesthesia has greatly reduced the strenuousness of the test of being born. This is shown by the marked reduction of the neonatal mortality in the last twenty years. Formerly it was above six per cent as compared to two per cent at the present time.

The pediatrician now takes charge and reduces Nature's hazards in great fashion. In olden times the baby that survived the "second summer" had real stamina. Not only does the pediatrician feed the infant so that the weak one does about as well as the strong one, but he immunizes him so completely that children's diseases do not get a chance to test the modern infant. And so it goes through life. Except for poliomyelitis, all the great plagues have been conquered. The only way a person now can die is to wear out or die of some degenerative disease.

Evidently Nature's purpose is to make a perfect MAN and she goes about it with a prodigality that only Nature can afford. Man, on the other hand, is bent on producing men and women with lower standards of perfection. Sometimes we wonder if it is worth while.

Eight Hundred Years Before Moses

ONE of the treasures of the Louvre is the basalt stele containing the Code of Hammurabi. It is a beautiful stone, shaped like a canine tooth about 4½ feet long, entirely covered with cuneiform writing except at its tip. Here there is a bas-relief representation of Shamash, the sun god, giving the law to King Hammurabi who is standing. The carving is well done. Experts tell us this work dates back to the second millennium before Christ. As we sat looking at it, we were impressed as never before

with the abstract idea of time. When we see some prehistoric bone or weapon and are told by some scientist that it is so many million years of age, we have not been greatly impressed, but here within ten feet of where we were sitting is a beautiful object carved and inscribed by man some four thousand years ago. Here is the law of the land inscribed on stone, eight hundred years before Moses. There were vases and other objects of art in the same room that dated back to four thousand years before Christ, which showed there were cultured people in those days.

What has man accomplished in these six thousand years? Many civilizations have risen, flourished and disappeared and would be entirely forgotten but for the archeologists. Greece and Rome have left glorious ruins and a living literature. If historians would only tell us the why of all this, history could well be called a science.

Man has learned a great deal about the world he lives in. It is no longer flat and the giffons and dragons have all disappeared. He has learned a great deal about his own anatomy, physiology and pathology and is beginning to learn something about the workings of his own mind. Thanks to modern medicine, he has learned to live longer, and to modern physics and chemistry, to live easier. However, he still fights, kills and tortures, as of old.

SOCIETY PROCEEDINGS

Virginia State Board of Medical Examiners.

At the meeting of the Board held in Richmond in December, the following applicants were granted licenses to practice in this State on the basis of examination:

Dr. Gregory Peckham Carter, Newport News.
Dr. Wiley Holt Cozart, Richmond.
Dr. Joseph Geza Doboy, Richmond.
Dr. Julio Jimenez-Sierra, Lynchburg.
Dr. Henry Gershon Kupfer, Richmond.
Dr. John Henderson Stewart, Ho-Ho-Kus, N. J.
Dr. Charles Roger Sullivan, Portsmouth.
Dr. William Dunn Walker, Catawba Sanatorium.

The following applicants were granted licenses through endorsement of credentials:

Dr. Jesse Clyde Alley, Jr., Dante.
Dr. Howard Milton Ausherman, Chattanooga, Tenn.
Dr. Jefferson Davis Beale, Jr., Danville.
Dr. Silos O. Binns, Newport News.
Dr. Henry Boone, Norfolk.
Dr. M. Joseph Boyle, Grundy.
Dr. Homer Wilson Boysen, Arlington.
Dr. John Boyd Bullock, Richmond.
Dr. Warren Bernard Burch, Washington, D. C.
Dr. Milton Alexander Butts, Smithfield.
Dr. Robert Sargent Calkins, Ft. Belvoir.
Dr. William Canfield Carpenter, Bristol, Va.-Tenn.
Dr. Paul Benton Chapman, Winchester.
Dr. Harold Frederick Chase, Charlottesville.
Dr. Kenneth R. Crispell, Charlottesville.
Dr. Joseph Howard Early, Hillsville.
Dr. Lois Fox Fryer, Arlington.
Dr. Edwin Wagener Gerrish, Lynchburg.
Dr. Mary Elisabeth Case Gray, Veteran's Administration, Hampton.
Dr. Irene Freda Anderson Harris, Norfolk.
Dr. Verden Edward Hockett, Dahlgren.
Dr. William Eugene Hubbard, Winchester.
Dr. Lewis Karl Ingram, Stonega.
Dr. Edward Palmore Irving, Norton.
Dr. Reginald Coleman Jackson, Richmond.
Dr. Robert William Jessee, Honaker.
Dr. Harold S. Kolmer, Jr., Salem.
Dr. Benjamin H. Libien, Richmond.
Dr. Wolfram George Locher, West Reading, Pa.
Dr. Archibald Delgado McCoy, Wardensville, W. Va.
Dr. Joseph Tedford McFadden, Charlottesville.
Dr. Robert E. Martin, Washington, D. C.
Dr. Arthur F. Mangelsdorff, Plainfield, N. J.
Dr. Matthew Tallmadge Moorehead, Norton.
Dr. Seymour Fiske Ochsner, Richmond.
Dr. Laszlo Ormandy, Portland, Me.
Dr. William Parson, Charlottesville.
Dr. John Howell Peacock, Washington, D. C.
Dr. Warner Philip Portz, Washington, D. C.
Dr. Enos Ray, Leesburg.
Dr. Jack J. Rheingold, Washington, D. C.
Dr. Robert Nelson Ricketts, Lynchburg.

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Dr. Leslie William Rose, Jr., Richmond.
Dr. Robert Kenneth Scott, Charlottesville.
Dr. John Greaton Sellers, Norfolk.
Dr. Randolph Tucker Shields, Jr., Staunton.
Dr. Louis Ernest Sigler, Jr., Roanoke.
Dr. Gerald Walker Smith, Portsmouth.
Dr. George Grant Stitzinger, Roanoke.
Dr. John R. Tietjen, Falls Church.
Dr. Morris Perry, Norfolk.
Dr. Joseph Emmett Walthall, III, Athens, W. Va.
Dr. William Jack Weaver, Jr., Alexandria.
Dr. Leonard Rudolph Wells, Jr., Ewing.
Dr. Thomas Ashton Wilson, Washington, D. C.
Dr. Joseph Leonard Witkowski, Norton.
Dr. George M. Wyatt, Washington, D. C.

Lynchburg Academy of Medicine

The March meeting of the academy, held on the 13th, was exclusively a business meeting.

The important action taken was the adoption of the report for the creation of a Grievance Committee, which was adopted practically unanimously. This follows as a suggestion for other Societies contemplating such an organization.

JOHN T. T. HUNDLEY,
Secretary

GRIEVANCE COMMITTEE

On March 2, 1950, the Committee on Public Relations met with Doctor Holcombe Hurt, the President of the Lynchburg Academy of Medicine, for the purpose of organizing a Grievance Committee.

Your Committee on Public Relations respectfully submits this outline for a Grievance Committee for your consideration and adoption:

The purpose of the Committee shall be to hear, investigate and decide upon the merit of complaints registered by patients or their responsible representatives relating to improper, unethical or unprofessional conduct or action, or excessive charges for professional services rendered by members of the Lynchburg Academy of Medicine.

This Committee will have no authority or responsibility to review, investigate, or decide matters involving professional ethics or problems in which only doctors are involved, and will deal only with those complaints which originate and come from the lay public.

Method—Complaints must be submitted in writing to the President of the Lynchburg Academy of Medicine, and by him referred to the Grievance Committee. . . . The Committee shall investigate the complaints fully and decide upon the merit or justice of the case. The method of investigation and hearing, and the defense submitted, shall be left to the decision of the committee, and may vary with the case under study. After careful and full investigation and study the committee shall decide upon the merit of the complaint, and shall report its decision in writing to the Board of Trustees. The Board shall review the findings and transmit its decision to the complainant and the doctor, or doctors, or the hospital involved. In the event either the complainant or the defendant are not satisfied with the decision, another hearing before the Board of Trustees of the Lynchburg Academy of Medicine may be requested by either, or the case may be referred to the State Grievance Committee.

The Grievance Committee shall be selected from a panel of ten (10) active members of the Academy of Medicine chosen by the Board of Trustees. Three (3) members of the panel shall be designated by the President of the Academy to serve as the Grievance Committee to hear a particular case. No member shall serve on the committee which has under investigation a complaint which relates to him, in which he has concern, or in which he cannot give a fair and impartial hearing.

Every member of the Grievance Committee, and of the Board of Trustees shall be sworn to secrecy, and following an investigation and final decision of a disputed case, all records pertaining to the case shall be destroyed.

(Signed)
JOHN WYATT DAVIS, JR., M.D., *Chairman*
JOHN T. T. HUNDLEY, M.D.
CLARENCE E. KEEFER, M.D.

Washington County Medical Society.

The meeting held at the Martha Washington Inn, Abingdon, January 19, marked the first anniversary of the re-establishment of this group. The Washington County Medical Society had been inactive since 1920.

The officers for the past year were: Dr. R. S. LeGarde, Damascus, President; Dr. Frederick Johnston, Abingdon, Vice-President; Dr. James M. Suter, Bristol, Secretary-Treasurer. It was felt by all present that the year had been a most successful one and at the present time there are twenty-five members. Average attendance for the year was 63 per cent.

It was noted at this meeting that one of the charter members Dr. S. H. Yokeley had died during the year.

Election of officers for the coming year was held at this time and the following were elected unanimously: Dr. John A. Wolfe, Abingdon, President; Dr. J. H. Hagy, Abingdon, Vice-President; and Dr. J. M. Suter, Bristol, was re-elected Secretary-Treasurer.

The Washington County Medical Society meets at the Martha Washington Inn, Abingdon, on the

third Thursday of each month at 6:30 p.m. All visitors are cordially invited to attend.

The Washington County Medical Society met at the Martha Washington Inn on February 16, with the following present: Drs. Stuart Catron, Gerhard Gabriel, Frederick Johnston, Rufus Morison, Catherine Smith, Phil Smith, James Suter, John A. Wolfe, Jack Wycoff, Rees Russell, W. E. Cline and W. R. Cline.

The speaker for the evening was Dr. Will Chapin, Richmond, who is a pediatrician with the Virginia State Department of Health. Dr. Chapin led a most interesting and informal discussion on rheumatic fever, discussing in particular the medical and public health aspects of the disease. Dr. Chapin had been in Bristol that day to conduct the rheumatic fever clinic which was held at the King's Mountain Memorial Hospital, February 16, under the auspices of the Washington County Health Department.

The Orange County Medical Society

Met at the James Madison Hotel at Orange on April the 3rd, at which time Dr. Byrd S. Leavell of the University of Virginia as invited guest spoke on "Some Aspects of Altered Physiology of the Spleen". The doctors and dentists of Culpeper as well as Orange County were invited to this meeting which was followed by dinner. Dr. H. C. McCoy and Dr. J. Garnett Bruce, both of Gordonsville, are president and secretary, respectively, of the Society.

Norfolk County Medical Society.

Marjorie Shearon, Ph.D., was the guest of this Society and its Auxiliary on the evening of April the 18th. Dr. Shearon is an analyst of Legislative and Public Opinion Trends and conducts a regular news service. Her topic on this occasion was the "Road of No Return". Following her interesting and timely talk, there was a question and answer period.

Tazewell County Medical Society.

At the regular bi-monthly meeting of this Society on February the 15th, the guest speaker was Dr. Frank Holroyd of Princeton, W. Va., who spoke on the subject "The A.M.A.'s Educational Program and How Your Local Society Can Help". Dr. J. W. Shawver and Dr. Mary Elizabeth Johnston, both of Tazewell, are president and secretary respectively.

The Warwick County Medical Society

Held its regular meeting on March the 14th, at which time Dr. Edward S. Ray, assistant professor of Medicine, and Dr. Frank P. Coleman, assistant professor of Surgery at the Medical College of Virginia, discussed "The Medical and Surgical Aspects of Pulmonary Hemorrhage".

A Public Relations Committee was appointed by the president, Dr. George S. Grier, III, and Dr. Franklin D. Freda, formerly of Lynchburg, was accepted for membership.

J. W. CARNEY,
Secretary

Roanoke Academy of Medicine

At the regular monthly meeting of the Academy on April 3, Sir Alexander Fleming, the discoverer of penicillin, spoke on The Search for Antibiotics. Dr. C. W. Mayo of the Mayo Clinic spoke on Carcinoma of the Rectum: Surgical Considerations.

The Scientific portion of the program was arranged and sponsored by the Gill Memorial Eye, Ear, and Throat Hospital. Dr. Marcellus A. Johnson, Jr., is President of the Academy, and Dr. William H. Kaufman is Secretary.

Rockbridge County Medical Society.

Dr. M. T. Vaden of Buena Vista is president of this Society and Dr. T. F. Kennan of Raphine the secretary.

Rockingham County Medical Society.

At the annual meeting of this society, Dr. George S. Row, Bridgewater, was elected president, and Dr. H. H. Helbert, Harrisonburg, secretary.

Richmond Academy of Medicine.

Dr. Harvey B. Stone, associate professor of surgery at Johns Hopkins University School of Medicine, Baltimore, delivered the fourth annual J. Shelton Horsley Memorial Lecture before the Academy on Tuesday evening, April 11. Dr. Stone, a foremost authority on surgery of the colon, selected as his subject "Surgical Aspects of Certain Non-Malignant Colon Conditions: Chronic Non-Specific Ulcerative Colitis, Diverticulitis, Megacolon".

The J. Shelton Horsley Memorial lecture, presented annually at the Academy, was established in memory of Dr. Horsley by his son, Dr. Guy W. Horsley.

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NEWS

The Annual Meeting—Medical Society of Virginia.

Plans are progressing well for the Roanoke meeting of the Medical Society of Virginia, October 8-11. Cards were sent all members the first of April, reminding them that those who wish to present papers at that time should send their titles with short abstracts to the office of the Society, by or before May the 15th.

Dr. W. C. Caudill, President, after discussion with the Program Committee, has invited and had acceptances from Senator Harry F. Byrd for Monday evening, the 9th, and at the suggestion of the Academy of General Practice, Dr. Franklin D. Murphy, dean of the School of Medicine in Kansas City, will be the guest speaker the 10th. On Wednesday morning, there will be a symposium on Progress in Medicine, which will be conducted by Dr. George Thomas Pack of New York City, Dr. Russell Haden of Crozet, Dr. William Parson of the University of Virginia and Dr. Harvey B. Haag of the Medical College of Virginia. Dr. Kinloch Nelson and Dr. J. Edwin Wood, Jr., of the two medical schools will have charge of a clinico-pathological conference. These in addition to the volunteer papers should form a good program and it is hoped many members may attend.

10,000 Physicians Expected at A.M.A. Annual Meeting.

Approximately 10,000 physicians are expected to attend the 99th annual meeting of the American Medical Association in San Francisco, June 26-30.

Attracting the doctors will be the scientific sessions and scientific and technical exhibits. More than 300 papers devoted to medical and surgical progress will be presented by outstanding physicians from all over the world.

Meetings of the House of Delegates will be held in the Palace Hotel, and will be presided over by Dr. F. F. Borzell of Philadelphia, speaker of the House.

The installation of Dr. Elmer L. Henderson of Louisville, Ky., as president will take place on the evening of June 27. He will succeed Dr. Ernest E. Irons of Chicago. The annual award for distinguished service to the medical profession will be made on that occasion, the winner being selected by vote of the House of Delegates the day before. The presidential ball will be held June 29. Both events will be in the Palace Hotel.

San Francisco's Civic Center, a group of buildings which has housed some of the largest national conventions, will be used for the scientific portion of the meeting. Scientific sessions, which will cover all phases of medicine and surgery, will be held in several buildings, including the High School of Commerce and Masonic Hall. A technical display by more than 280 exhibitors will be staged in the Civic Auditorium.

General scientific meetings will be held on the first two days of the convention. Sectional groups will meet on the next three days.

Of educational interest also will be the presentation of surgical procedures over a closed television circuit. The operations will be performed in one of the local hospitals and transmitted in color to 20 receivers in Masonic Hall.

Virginia Psychosomatic Forum Initiated.

A Psychosomatic Forum, sponsored jointly by the Department of Medicine of the University of Virginia and by the American Psychosomatic Society, will be given at the Medical School Amphitheatre at Charlottesville on Friday, May 26, 1950, beginning promptly at 2:00 P.M.

The Forum, which is the first of an extended series to be organized in Virginia, will present the following program:

1. Obesity as a Medical Problem—H. B. Mulholland, M.D.
2. Obesity, a Disturbance of Homeostasis—William Parson, M.D.
3. Emotional Factors in Obesity in Children—Frank Curran, M.D.
4. Psychological Aspects of Obesity in Adults—David C. Wilson, M.D.
5. Suggested Approaches to Treatment of Obesity—Andrew D. Hart, M.D.
6. Discussion Period.

Dr. Andrew D. Hart of the University is chairman of the Forum. All physicians are cordially invited to attend.

Medical College of Virginia News.

Sir Alexander Fleming, world-famous discoverer of penicillin, spoke at the College, April 11, on "Modern Anti-biotic Research".

A program to honor Dr. W. T. Sanger, president, was held in the Student Social Center of the College on April 27. He succeeded the late Dr. Stuart McGuire as president of the college twenty-five years ago, and was the first full-time president upon the recommendation of Dr. McGuire.

The Medical College of Virginia Hospitals will again this year observe National Hospital Day on May 12 with an Open House. Plans are being made to take approximately 500 people on tours of the hospitals of the College. This will be the third year the hospitals have observed National Hospital Day.

The third annual Stoneburner lecture series at the College was given by Dr. Walter L. Palmer, professor of medicine at the University of Chicago. These lectures are given in memory of Dr. Lewis T. Stoneburner, III, a Richmonder who was lost over Algiers, October 10, 1943.

The library of the College has been named the Tompkins McCaw Library after members of two families who have given more than 100 years of service to the institution. In announcing the new name Dr. W. T. Sanger, president of the College, said that eventually all of the buildings of the College will be named after individuals.

The three members of the Tompkins family honored are Dr. Christopher Tompkins, Dr. James McCaw Tompkins and Captain Sally Louisa Tompkins. Honored in the McCaw family are Dr. James Brown McCaw and Dr. Walter Drew McCaw.

Dr. Laurence H. Snyder, dean of the graduate school of the University of Oklahoma and Professor of medical genetics, gave a lecture to the student body March 28 on "Heredity in Modern Life."

Seventeen surgeons from Wisconsin, all members of the Wisconsin Surgical Club were guests of the surgeons at the Medical College of Virginia two days in March. The MCV surgeons under the direction of Dr. Herbert C. Lee planned a two day program for the guests.

Dr. Lehman Honored.

On the opening of the State's 1950 cancer crusade drive in Charlottesville on March the 31st, Dr. Edwin P. Lehman, head of the gynecology department of the University of Virginia and a former national president of the American Cancer Society, was presented the Society's 1950 medal for his work to control the disease. Dr. Guy R. Fisher of Staunton, chairman of the State drive, was among the 200 persons who attended the kick off dinner.

Dr. Kenneth N. Byrne,

Who has been practicing in Lexington since his return from service in the war, has moved to Marion, South Carolina, where he is joining a new 3-man group and will be in charge of internal medicine.

The Frank N. Hack Lecture.

The annual Frank N. Hack lecture at the Winchester Memorial Hospital was given on April 5, by Dr. Charles W. Mayo of the Mayo Clinic, Rochester, Minnesota. Dr. Mayo's subject was "Diagnosis, Surgery and Outlook in Cancer of the Right Colon".

This is the second Hack lecture which was established by the Staff and Executive Committee of the Winchester Memorial Hospital as a tribute to Mr. Hack and in appreciation of his numerous contributions to the hospital.

A.M.A. Golf Tournament—Monday, June 26

Dr. C. E. Shannon, Chicago, President of the American Medical Golfing Association, announces that the 34th Tournament will be held on the two very attractive golf courses of the Olympic Golf Club, San Francisco, on Monday, June 26, the opening day of the 1950 A.M.A. Annual Session.

Fellows planning to participate should send, as soon as possible, their name, handicap, and section in medicine in which they will register to Secretary Bill Burns, 2020 Olds Tower, Lansing 8, Michigan. This will assist the local committee in making the necessary arrangements. The starting committee will assist players from the different states to arrange games with like handicaps, age, and specialty. The detailed program of the AMGA Tournament will appear in the Convention Number of the AMA Journal.

Applications for membership may be obtained by writing to Secretary Burns, 2020 Olds Tower, Lansing 8, Michigan.

Dr. Alvarez to Edit the Family Doctor Journal.

Dr. Walter Alvarez, senior consultant in the Di-

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vision of Medicine in the Mayo Clinic and widely known author and medical lecturer, has been appointed medical editor of "GP", published by the American Academy of General Practice. He succeeds Dr. F. Kenneth Albrecht, who died recently following an automobile accident.

Dr. Alvarez is one of the nation's best known physicians and has been referred to as the "Twentieth Century Osler" by those who would compare him with the famous Johns Hopkins physician who was knighted by the British king. Having reached the age of retirement at the Mayo Foundation, Dr. Alvarez is moving to Chicago where he will assume his new duties. The journal is published by the Academy's headquarters office in Kansas City, Missouri.

News from University of Virginia, Department of Medicine.

Recent visiting lecturers at the University of Virginia Department of Medicine were:

Dr. John P. Peters, Yale University. Subject: "The Incidence and Correction of Some Electrolyte Disturbances in Clinical Medicine."

Dr. Herbert M. Evans, University of California. Subject: "Unsolved Problems in Anterior Pituitary Physiology."

Dr. Merrill C. Sosman, Professor of Radiology, Harvard Medical School, was guest speaker at the annual lecture and banquet of the University of Virginia Chapter of Alpha Omega Alpha on March 27th. Dr. Sosman spoke on the subject, "Pituitary Tumors as seen by the Roentgenologist".

The following were elected to membership in A.O.A. at this time:

From the Faculty: Dr. Chalmers L. Gemmill.

From the Alumni: Dr. Charles S. Venable and Dr. Frank W. Foote.

From the Students: Frank Bilisoly, John C. Buchanan, Charles H. Sackett and William P. Wharton.

The annual meeting of the Virginia Chapter of the American College of Chest Physicians was held at the University of Virginia Department of Medicine on March 30. The following program was presented:

"Tuberculosis of the Larynx"—Dr. George Ewart and Dr. George Welchons, Richmond.

"Pulmonary Lesions Simulating Tuberculosis"—Dr. Woodbury Perkins, University of Virginia.

"Resection for Pulmonary Tuberculosis"—Dr. F. P. Coleman, Richmond.

"The Problem of Lung Cancer"—Dr. E. C. Drash, University of Virginia.

"Vascular Anomalies of the Lung"—Dr. Brian Blades, Professor of Surgery, George Washington University School of Medicine, Washington, D. C.

The American College of Chest Physicians

Will hold its sixteenth annual meeting at the St. Francis Hotel, San Francisco, California, June 22 through 25. An interesting scientific program has been arranged for the meeting.

The Board of Examiners of the American College of Chest Physicians announces that the next oral and written examinations for Fellowship will be held in San Francisco, June 22, 1950. Candidates for Fellowship in the College who would like to take the examinations should contact the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Dr. Dean B. Cole, Richmond, serves as the Regent of the College for the States of Maryland, District of Columbia, Virginia and West Virginia.

Dr. William Bickers,

Until recently of Richmond, has been appointed as chairman, Department of Obstetrics and Gynecology and Director of the Woman's Clinic of The Bishop de Goesbriand Hospital of Burlington, Vermont. He entered upon his duties there on March 1.

Dr. Claude Marshall Lee, Sr.,

Founder and retired Director of St. Andrew's Hospital, Wusih, China, is Chief of out-patient service at the Station Hospital, Fort Belvoir, Virginia. Dr. Lee was for a number of years secretary of the China Section of the American College of Surgeons.

Dr. J. W. Witten

Of North Tazewell is slated to play one of the leading roles in Tazewell County's sesquicentennial celebration, June 25-28, when he will impersonate his pioneer ancestor, Thomas Witten, who was the first white man to settle in Tazewell County with his family.

Richmond Chapter, M.C.V. Alumni.

Dr. Robert V. Terrell was on March 31 elected president of the Richmond Chapter of the Medical College of Virginia Alumni Association. This was a re-organization meeting as it is the first meeting of the local chapter since March 31, 1941. Other officers elected are Dr. Richard Michaux as vice-president and Wilhelm Haag as secretary-treasurer.

Dr. L. J. Motyca,

Of Norfolk, for the past twenty-two years surgical pathologist at Norfolk General Hospital (except for the time he was in service), has resigned that position to accept an appointment to the staff of Rockingham Memorial Hospital at Harrisonburg. He will enter upon his new duties on June 1.

"Buddy Poppy" Sale.

Attention is called to the Buddy Poppy Sale to be held in May, all Buddy Poppies being made by disabled ex-service men. It is particularly pertinent that this month marks the 25th anniversary of the national home for widows and orphans of veterans. Entire proceeds of the annual sale are devoted to one phase or another of the veterans' rehabilitation and welfare program.

Revised Edition of Motion Picture Reviews Now Available.

The Committee on Medical Motion Pictures of the American Medical Association has completed the second revised edition of the booklet entitled REVIEWS OF MEDICAL MOTION PICTURES. This booklet now contains 225 reviews of medical and health films reviewed in *The Journal A.M.A.* to January 1, 1950. Each film has been indexed according to subject matter. The purpose of these reviews is to provide a brief description and an evaluation of motion pictures which are available to the medical profession. Each film is reviewed by competent authorities and every effort has been made to publish frank, unbiased comments. Copies are available at a cost of 25 cents each from: Order Department, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

The U. S. Civil Service Commission

Announces it is accepting applications for Medical Officer positions and for Medical Officer (Specialist) positions. Full information may be obtained from The U. S. Civil Service Commission, Washington 25, D. C.

James H. Stone

Has been appointed as a Program Field Consultant in the Public Health Division of the American Heart Association. He will assist in organizing local heart associations and developing community cardiac programs.

Mr. Stone previously served as Director of Public Health Education, City Health Department, Richmond, Va., and for the past year was Instructor in Public Health at the Medical College of Virginia in Richmond. For several years, Mr. Stone was Chief Sanitarian of the Sanitation and Community Health Organization of the Alaska Territorial Health Department.

A native of Williamsburg, Mr. Stone obtained his Master of Public Health Degree at Yale University. He holds a B.S. Degree from the College of William and Mary, where he also served as an Instructor in Public Health.

Dr. Randal A. Boyer,

Who has for several years been associated with Dr. Fred M. Hodges and his staff in Richmond, has moved to Ardmore, Pa., and is now assistant professor of Radiology at Hahnemann Medical College and Hospital, Philadelphia.

Help the Doctor Help You!

It is a tragic irony that all doctors cannot immediately know all the new drugs, all the new discoveries. It takes time for information to fan out from a research laboratory, through doctors and to patients, and people die because of the gap between theory and practice. But it is happening less and less often. New detection methods, new treatments for cancer are now reaching general practitioners throughout the country with a speed that would have been considered magic a few years ago.

Seminars and refresher courses conducted by the American Cancer Society are heavily attended. A constant stream of brochures, journals and exhibits for medical gatherings are put out by the Society to keep 116,000 general practitioners up to date. And these are the doctors who are most likely to see the man or woman with an unsuspected cancer in time for treatment that can save them. These are the doctors for whom closing the gap between advanced knowledge and actual practice with patients means really giving the benefits of medical science to the people. These are the doctors who have made the

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first fifty years of our century the healthiest in human history. Help them keep on learning the newest and best ways to diagnose and treat cancer.

Help them to keep on helping you, by giving to the American Cancer Society's 1950 Crusade Against Cancer—Give for cancer research, service to cancer patients and education about cancer.

Office Space Available.

Office space is available for two doctors in the corner building at 932 West Franklin Street, Richmond. Call 4-3380. (*Adv.*)

For Rent—

Nine room modern home and Doctor's office—15 acres of land (at Ruther Glen)—12 miles from Bowling Green, 1½ miles off Rout 1 highway. Vacated by death of a doctor. Good country practice. Contact T. H. Dougherty, Hanover, Virginia, or phone Mechanicsville 2618. (*Adv.*)

OBITUARIES

Dr. E. E. Epperson,

Prominent rural physician of Meadowview, died at the George Ben Johnston Memorial Hospital on April 1, 1950, due to burns received when his pajamas and bathrobe suddenly ignited when sitting near an open fire on Tuesday morning, March 28. He was 71 years of age at the time of his death.

Dr. Epperson was a graduate of the University College of Medicine in 1905 and served his internship at the Home for Incurables. He practiced medicine in Washington County for 45 years, the first 8 years in Abingdon, and the remainder of the time in Meadowview.

Dr. Epperson was born in Campbell County, Virginia on May 26, 1878. He was buried in the Knoll Kreg cemetery, Abingdon, Virginia. Dr. Epperson is survived by his widow, Mrs. Bertha Rowe Epperson and four sons and four daughters.

Dr. Epperson was a charter member of the Washington County Medical Society when it was reorganized in 1949.

At the suggestion of the president and the consent of several members of the Washington County Medical Society the following resolution was passed on April 2:

BE IT RESOLVED that the members of the Washington County Medical Society express their sincere sympathy to Dr. Epperson's family in their grief. In the death of Dr. Epperson these people of Meadowview have sustained a deep loss. He was a tireless worker and worked unceasingly for the health and care of his patients and professional colleagues. The community has lost a valued and beloved citizen and the medical profession a physician who will be greatly missed and difficult to replace.

This resolution to be spread on the minutes of the Medical Society, a copy sent to the VIRGINIA MEDICAL MONTHLY, and a copy to the family of Dr. Epperson.

Committee:

J. A. WOLFE
G. H. WOLFE
J. M. SUTER

Dr. Charles Carr Richards,

One of the older physicians of Roanoke, died on March the 12th, at the age of 70 years. He studied medicine at the former University College of Medicine, Richmond, from which he graduated in 1906. He was a member of the Roanoke Academy of Medicine, and had been a member of the Medical Society of Virginia for a number of years. His wife and a daughter survive him.

Dr. John Walker,

For many years a practicing physician of Lynchburg, died March 27, at the age of 83. He was a graduate of the University of Maryland in 1891, took graduate work at Johns Hopkins University, and attended numerous clinics and post-graduate courses. He was a member of the Lynchburg Academy of Medicine until his retirement from practice more than ten years ago, and was made a Life Member of the Medical Society of Virginia in 1948. His wife and a sister survive him.

Dr. David Meade Mann,

Formerly of Richmond, died at the home of his daughter in Bloomington, Indiana, March 21. He was for many years a widely known and beloved physician of Richmond, prior to his retirement about ten years ago when he moved to Paducah, Kentucky, where his daughter was then living. He was 76 years of age and a graduate of the Medical College of Virginia in the class of 1895. He was a former member and secretary of the Richmond Academy of Medicine and formerly a member of the Medical Society of Virginia.